Helsinki Studies in Education, number 46

Tarja Tuononen

Employability of university graduates

The role of academic competences, learning and work experience in the successful transition from university to working life

To be presented, with the permission of the Faculty of Educational Sciences of University of Helsinki, for public discussion in the seminar room 302 at Athena, Siltavuorenpenger 3 A on the 12th of April, 2019 at 12 o'clock

Helsinki 2019

Custos
Professor Sari Lindblom, University of Helsinki, Finland

Supervisors
Docent Anna Parpala, University of Helsinki, Finland
Professor Sari Lindblom, University of Helsinki, Finland

Pre-examiners
Professor Edith Braun, Justus Liebig University, Germany
Professor Tobias Jenert, University of Paderborn, Germany

Opponent
Professor Simon Barrie, Western Sydney University, Australia

Cover
Tarja Tuononen

Unigrafia, Helsinki

ISBN 978-951-51-5122-3 (nid.)
ISBN 978-951-51-5123-0 (pdf)

University of Helsinki, Faculty of Educational Sciences
Helsinki Studies in Education, number 46

Tarja Tuononen

Employability of university graduates
The role of academic competences, learning and work experience in the successful transition from university to working life

---

Abstract
The main aim of this doctoral thesis was to explore university graduates' employability and transition to working life. The first aim was to explore graduates' evaluations of their academic competences, their confidence in success in working life and usefulness of work experience, and what kind of profiles can be identified based on the evaluations. The second aim was to explore the interrelations between academic competences and approaches to learning. Thirdly, the purpose was to investigate the relation between work experience, approaches to learning and study success. The fourth aim was to explore graduates' evaluations of the usefulness of their degree and career success three years after graduation. The fifth aim was to explore what kinds of challenges graduates have encountered in working life.

This thesis consists of four studies. It was a longitudinal study and applied a mixed-methods approach. Data included 1023 survey answers and 83 interviews at the time of graduation and follow-up survey data (N=57) (including open answers) three years after graduation. In addition, study success information was gathered from the Student Register.

The results of Study I showed variation in graduates' descriptions and evaluations and four profiles were identified (*rich descriptions/high confidence, rich desriptions/low confidence, limited desriptions/high confidence, limited descriptions/low confidence*) based on the richness of the evaluations of academic competences provided by the graduates and how confident they were in their future success in working life. In addition, graduates with rich descriptions of their academic competences perveived their work experience more useful for their studies than graduates with limited evaluations of competences.

In order to understand evaluations of academic competences more profoundly, Study II investigated the relationship between academic competences and approaches to learning. The results of Study II revealed that a deep approach to learning and organised studying, especially putting effort into learn competences, was related to the richness of the evaluations of competences. Furthermore, Study II showed that a deep approach to learning had stronger relations with academic competences than do other approaches (surface approach and organised studying). It also showed that graduates with rich evaluations of their academic competences were more satisfied with their university degree.

The results of Study III showed that approaches to learning are important factor to take into account when exploring the relation between work experience and study success. The results showed that academic work was related to a deep approach to learning and non-academic work was related to a surface approach to learning and unorganised studying. In addition, own academic work had a direct negative relation to study pace when working more than 20 hours per week as well as doing more 20 hours of non-academic work per week had a negative relation to the thesis grade.

Study IV showed that graduates with rich descriptions of their competences at the time of graduation had more often academic work that was related to their study field and had experienced less difficulties related to employment after graduation compared to the graduates with more limited descriptions of their competences. In addition, study showed that after three years of graduation, collaboration and communication competences were evaluated as being less developed than they evaluated at the time of graduation. The results of Study IV also revealed that most of the challenges

that graduates reported having encountered in working life were related to a need for more academic competences, especially presentation and social competences.

In conclusion, this doctoral thesis provides new information on the factors that are related to employability and it extended previous employability models by adding aspect of learning as a single dimension. Furthermore, it showed individual differences in graduates' perceptions of their employability. This doctoral thesis indicates that the ability to evaluate and describe one's own competences at the time of graduation is an important factor for employability and career success. The findings demonstrate that employability is also related to students' learning, and thus, it can be enhanced by improving the quality of student learning. This doctoral thesis indicates that a mixed-methods approach is needed to explore graduates' employability and especially competences more profoundly.

Keywords: employability, academic competences, approaches to learning, work experience, graduates, career success, higher education

Helsingin yliopisto, Kasvatustieteellinen tiedekunta
Kasvatustieteellisiä tutkimuksia, numero 46

Tarja Tuononen

Yliopisto-opiskelijoiden työllistyvyys
Akateemisten kompetenssien, oppimisen ja työkokemuksen merkitys menestyksekkäässä siirtymisessä yliopistosta työelämään

Tiivistelmä

Tämän väitöstutkimuksen tavoitteena oli tutkia yliopistosta valmistuneiden työllistyvyyttä ja siirtymistä työelämään. Tutkimuksen ensimmäinen tavoite oli tutkia vastavalmistuneiden kuvauksia akateemisista kompetensseistaan, luottamuksesta työelämässä pärjäämiseen sekä työkokemuksen hyödyllisyydestä opintoihin. Tavoitteena oli tunnistaa näiden kuvausten perusteella erilaisia profiileja. Toinen tavoite oli tutkia, miten akateemiset kompetenssit ovat yhteydessä oppimisen lähestymistapoihin. Kolmantena tavoitteena oli tutkia työkokemuksen, oppimisen lähestymistapojen ja opintomenestyksen välisiä yhteyksiä. Neljäntenä tavoitteena oli tutkia valmistuneiden kokemuksia tutkinnon hyödyllisyydestä ja työelämässä menestymisestä kolme vuotta valmistumisen jälkeen. Viidentenä tavoitteena oli tutkia, minkälaisia haasteita valmistuneet olivat kohdanneet työelämässä valmistumisensa jälkeen.

Väitöskirjatutkimus perustuu neljään osatutkimukseen, joissa hyödynnettiin sekä määrällisiä että laadullisia menetelmiä ja pitkittäistutkimusasetelmaa. Tutkimuksen aineisto koostui kyselylomakevastauksista (N=1023), 83 haastattelusta sekä seurantakyselyvastauksista (N=57). Lisäksi tutkimuksessa hyödynnettiin opiskelijarekisteristä saatuja opintomenestystietoja.

Osatutkimuksen I tulokset osoittivat variaatiota valmistuneiden kuvauksissa ja neljä erilaista profiilia (*laaja/vahva, laaja/heikko, suppea/vahva, suppea/heikko*) tunnistettiin sen mukaan, miten monipuolisia kuvauksia valmistuneet esittivät kompetensseistaan ja miten luottavaisia he olivat työelämässä pärjäämiseen. Valmistuneet, jotka kuvasivat monipuolisesti omia akateemisia kompetenssejaan, kokivat myös työkokemuksensa hyödyllisempänä kuin valmistuneet, jotka kuvasivat kompetenssejaan suppeammin.

Osatutkimus II pyrki syventämään ymmärrystä siitä, miten oppimisen lähestymistavat ovat yhteydessä akateemisiin kompetensseihin. Tulokset osoittivat, että syväsuuntautunut lähestymistapa oppiminen ja suunnitelmallinen opiskelu sekä erityisesti oma panostus akateemisten kompetenssien oppimiseen olivat positiivisesti yhteydessä monipuolisiin kuvauksiin kompetensseista. Tulokset myös osoittivat, että syväsuuntautunut lähestymistapa oppimiseen oli vahvemmin yhteydessä akateemisiin kompetensseihin kuin pintasuuntautunut lähestymistapa oppimiseen tai suunnitelmallinen opiskelu. Tulokset myös osoittivat, että valmistuneet, jotka kuvasivat akateemisia kompetenssejaan monipuolisesti olivat tyytyväisempiä tutkintoonsa kuin valmistuneet, joilla oli suppeammat kompetenssikuvaukset.

Osatutkimus III osoitti, että lähestymistavat oppimiseen on tärkeä tekijä ottaa huomioon tutkittaessa työssäkäynnin ja opintomenestyksen välistä yhteyttä. Tulokset osoittivat, että akateeminen työ oli yhteydessä oppimisen syväsuuntatuneeseen lähestymistapaan ja ei-akateeminen työ pintasuuntautuneeseen lähestymistapaan. Lisäksi oman alan akatemisella työkokemuksella oli negatiivinen yhteys opintojen etenemiseen, kun työtä tehtiin yli 20 tuntia viikossa. Myös ei-akateemisella työllä oli negatiivinen yhteys tutkielman arvosanaan, kun työtä tehtiin yli 20 tuntia viikossa.

Osatutkimus IV osoitti, että valmistuneet, jotka kuvasivat kompetenssejaan monipuolisesti valmistumisvaiheessa, olivat useammin oman alansa töissä ja he olivat kokeneet vähemmän työllistymiseen liittyviä haasteita kuin valmistuneet, jotka kuvasivat akateemisia kompetenssejaan suppeammin. Lisäksi tulokset osoittivat, että kolme vuotta valmistumisen jälkeen yhteistyö- ja vuorovaikutustaidot arvioitiin kehittyneen vähemmän opintojen aikana verrattuna siihen, miten niiden arvioitiin kehittyneen valmistumishetkellä. Osatutkimuksen IV tulokset osoittivat myös, että suurin osa

haasteista, joita valmistuneet kuvasivat kohdanneensa työelämässä liittyivät akateemisiin kompetensseihin, toisin sanoen tarpeeseen saada lisää erityisesti sosiaalisia kompetensseja ja esiintymistaitoja.

Tämä väitöstutkimus laajensi aikaisempia työllistyvyysmalleja lisäämällä oppimisen yhdeksi ulottuvuudeksi ja osoitti oppimisen olevan yhteydessä valmistuneiden työllistyvyyteen. Lisäksi tutkimus osoitti yksilöllisiä eroja valmistuneiden työllistyvyyden kuvauksissa. Tämä väitöstutkimus osoittaa, että kyky kuvata omia valmiuksiaan valmistumishetkellä on tärkeä tekijä työllistyvyyden ja työelämässä menestymisen kannalta. Tutkimuksen perusteella voidaan sanoa, että panostamalla oppimisen laatuun voidaan myös edesauttaa valmistuneiden työllistyvyyttä. Tutkimus myös osoitti monimenetelmällisen tutkimuksen tarpeen tutkittaessa valmistuneiden työllistyvyyttä ja erityisesti tutkittaessa heidän akateemisia kompetenssejaan.

Avainsanat: työllistyvyys, akateemiset kompetenssit, lähestymistavat oppimiseen, työkokemus, valmistuneet, työelämässä menestyminen, yliopisto-opetus

Acknowledgements

Many people have supported me during this process. I owe my deepest gratitude to my supervisors, Docent Anna Parpala and Vice Rector, Professor Sari Lindblom. It has been a pleasure to complete this doctoral thesis under your supervision. I would like to express my warmest thanks to Anna for your support, encouragement and friendship during this process. I am grateful for all the discussions that we have had over the years. I appreciate your expertise and I have learnt a lot from you. I have enjoyed working with you. I would like to express my warmest gratitude to my other supervisor, Sari, who has been of great support since I started to work at the Centre for University Teaching and Learning at the University of Helsinki. I am grateful for your expertise and the ideas that you have shared with me. I also appreciate the fact that you always had time for your doctoral students. You always believed in me and pushed me forward. I am deeply grateful that you gave me opportunities to develop myself and to gain diverse work experience during the dissertation process.

I would also like to thank my co-author, Markus Mattsson, for your help with statistical analyses in Study III. I learnt a lot from our discussions and I appreciate your contribution to my research.

I would like to express my warmest thanks to Professor Auli Toom, the current director of the Centre for University Teaching and Learning. Thank you for your support and encouragement. I am also grateful that you gave me the opportunity to work with you on the same project and that I am able to continue as a postdoc researcher with that project. It means a great deal to me.

I would also like to thank my colleagues at the Centre for University Teaching and Learning, where this research was conducted. This has been the best place to develop as a researcher and teacher. I would especially like to thank Dr Henna Asikainen and Dr Heidi Hyytinen for their friendship and support during these years. It has been wonderful to share this journey with you. You have been good models for me in terms of how to continue with my career after completing the PhD studies. My warmest gratitude goes to Milla Räisänen. I am deeply grateful that I have been able to work with you and to do this thesis project at the same time with you. We have shared all the happy moments and difficulties together. This journey would not have been the same without your support and friendship.

During my dissertation project, I have closely collaborated with the Career Services of the University of Helsinki. I am grateful for the opportunity to use the survey (Opinto- ja työelämäpalaute) for my research purposes. It enabled me to collect the data and capture those students who were just graduating. I would like to thank Leena Itkonen for your expertise and many discussions during these years. I would also like to express warmest thanks to Eric Carver for your expertise and interest in my research.

I am grateful to my pre-examiners, Professor Edith Braun and Professor Tobias Jenert for their valuable comments. I would also like to thank Professor Simon Barrie for serving as opponent at the public defence of my dissertation. I am privileged to hear your comments and thoughts about my research.

I am grateful to the Doctoral Programme in Psychology, Learning and Communication (PsyCo) for granting me a salaried position for two years. I would also like to express my gratitude to the Emil Aaltonen Foundation and Alfred Kordelin Foundation for personal grants, which allowed me to complete this project. I would also like to thank Erik Hieta for the language revision of this thesis. I also express my gratitude to all the graduates who voluntarily participated in the present study.

I express my thanks to my dear friend Anne as well as other friends for your support and friendship during this project. You have taken care that I also had a life outside the university. I would also like to give my warmest thanks to dear Markus for your support, understanding and encouragement during these years.

My deepest gratitude belongs to my mother, Raila, who has always supported me and listened to my joys and worries during this journey. I am grateful for the many types of assistance that you have

gave me during these years. I would also like to thank my brother, Ari, for your support and encouragement. I am grateful to him and his family, his wife Johanna and children Minttu and Santtu. You all are very important to me. I am also deeply thankful for my father, Eero, who was a big support for me. He taught me that everything is possible if you just work hard for it. His memory has encouraged me during this project.

Espoo, March 2019

Tarja Tuononen

Content

1 INTRODUCTION 1
2 ELEMENTS OF EMPLOYABILITY AND CAREER SUCCESS 5
2.1 Defining and measuring academic competences 5
2.2 Developing academic competences at university 7
2.3 Academic competences in relation to approaches to learning 9
2.4 Work experience in relation to study success and learning 11
2.5 Metacognition and self-efficacy beliefs as important factors in employability 12
2.6 Usefulness of university education 13
2.7 Graduates' career success 14
3 THE AIMS OF THE DOCTORAL THESIS 17
4 CONTEXTS OF THE STUDY 21
5 METHODOLOGY 23
5.1 A mixed-methods approach 23
5.2 Participants 25
5.3 Materials 26
5.3.1 Surveys 26
5.3.2 Interviews 29
5.4 Analyses 30
6 RESULTS 37
6.1 Graduates' evaluations of their employability at the time of their graduation (Study I) 37
6.1.1 Evaluations of academic competences 37
6.1.2 Confidence in success in working life 39
6.1.3 Usefulness of work experience for studies 40
6.1.4 Variation in graduates' evaluations at the individual level: graduate profiles 42
6.2 The complex interrelations between academic competences and approaches to learning (Study II) 44
6.3 The relationship between work experience, approaches to learning and study success (Study III) 53
6.4 Graduates' perceptions of the usefulness of their university education three years after graduation (Study IV) 56
6.5 Graduates' career success (Study IV) 62
7 DISCUSSION OF THE MAIN FINDINGS 67
7.1 Elements of graduates' employability 67
7.1.1 Ability to describe academic competences 67
7.1.2 Academic competences and approaches to learning 68
7.1.3 Usefulness of work experience 69

7.1.4 Confidence in success in working life 70
7.2 The relationship between work experience, approaches to learning and study success 71
7.3 Graduates' transition to working life: usefulness of degree and career success 73
8 GENERAL DISCUSSION 79
8.1 Practical implications 81
8.2 Methodological and ethical reflections 83
8.2.1 Methodological reflections on sub-studies 84
8.2.2 Reflections on measuring academic competences 86
8.3 Future research 88
REFERENCES 91
APPENDICES 109

List of figures

Figure 1. Key concepts examining employability and successful transition to working life in the present doctoral thesis……16

Figure 2. A longitudinal mixed-methods study design…….23

Figure 3. The process of creating the profiles: phenomenon and individual level analyses…….42

Figure 4. Unstandardised regression coefficients and standard errors for the effects of own academic work, approaches to learning and study success……54

Figure 5. Unstandardised regression coefficients and standard errors for the effects of *other academic* work, approaches to learning and study success…….55

Figure 6. Unstandardised regression coefficients and standard errors for the effects of *non-academic* work, approaches to learning and study success…….56

Figure 7. Summary of the factors related to employability and career success…….80

List of tables

Table 1. Example of creating categories…….35

Table 2. Summary of analyses of the doctoral thesis……..36

Table 3. Variation in graduates' evaluations of their academic competences, confidence in their success in working life and the usefulness of their work experience……..……41

Table 4. Work situation of those in the different profiles at the time of graduation……...44

Table 5. Distribution of bachelor's and master's degree graduates into the four profiles……..44

Table 6. Means and standard deviations of academic competences and approaches to learning…...45

Table 7. The significant relationships between academic competences and approaches to learning.46

Table 8. Summary of the regression analyses on the relations between academic competences and approaches to learning…….…….47

Table 9. Themes and sub-themes in relation to the *rich* and *limited evaluation groups*…..……48

Table 10. Evaluations of academic competences at two measurement points and changes in those evaluations……...……..58

Table 11. Main categories, sub-categories and frequencies of the descriptions regarding developed and important competences…….....60

Table 12. Items of satisfaction with degree from a working life standpoint, means and standard deviations for graduates in the *rich* and *limited evaluation groups*…..…….61

Table 13. Main categories, sub-categories and frequencies of graduates' descriptions regarding what they would have needed more of while at university……62

Table 14. Main categories, sub-categories and frequencies of the challenges faced in working life……63

Table 15. Differences in the reasons mentioned by graduates for their difficulties in finding employment……...…64

Table 16. Summary of the main findings from sub-studies I–IV……..65

List of original articles

This doctoral thesis is based on the following four articles, which are referred to in the text by their Roman numerals (Studies I-IV):

I Tuononen, T., Parpala, A., Mattsson, M., Lindblom-Ylänne, S. (2016). Work experience in relation to study pace and thesis grade: investigation the mediating role of student learning. *Higher Education*, 72(1), 41–58. doi: 10.1007/s10734-015-9937-z.

II Tuononen, T., Parpala, A. & Lindblom-Ylänne, S. (2017). The transition from university to working life - An exploration of graduates perceptions of their academic competences. In Higher Education Transitions -Theory and Research. Kyndt, E. Donche, V., Trigwell, K. & Lindblom-Ylänne, S. (eds.) London: Routledge -Taylor & Francis Group, 238–253.

III Tuononen, T., Parpala, A. & Lindblom-Ylänne, S. (manuscript submitted for publication) Complex interrelations between academic competences and students' approaches to learning – A mixed-methods study**.**

IV Tuononen, T., Parpala, A. & Lindblom-Ylänne, S. (2019). Graduates' evaluations of usefulness of university education, and early career success – A longitudinal study of the transition to working life. *Assessment and Evaluation in Higher Education*, 44(4), 581–595. doi: https://doi.org/10.1080/02602938.2018.1524000.

1 Introduction

University education produces academic experts for different fields within society. Generally, university graduates are well employed after graduation. In 2016, a total of 83% of graduates with a master's degree were employed one year after graduation (Official Statistics of Finland, 2018). In the 2010s, university graduates also experienced difficulties in finding employment during the recession in Finland. In addition, there is evidence that graduates in non-professional fields encounter more difficulties in making the transition to working life and have poorer employment quality than graduates prepared to work in specific professions, such as medicine, law or teaching (Okay-Somerville & Scholarios, 2017; Puhakka, Rautopuro, & Tuominen, 2010). In the future, the role of employment quality as a funding criterion for universities will be increased (Ministry of Education and Culture, 2018). This will steer universities to put even more effort into enhancing students' employability. However, although graduates employability prospects are considered important, little research has thus far been conducted on employability (Suleman, 2018).

How can universities ensure and enhance graduates' employability? It has been argued that students' employability would be enhanced by improving the quality of student learning (Sleap & Reed, 2006). Since the Bologna Declaration, universities have paid attention to the quality of degrees and quality enhancement. For example, the University of Helsinki has developed a university-level qualitative feedback system to supports students' learning and to obtain feedback on how teaching supports students' deep-level learning. However, little is known about how the quality of students' learning is related to employability. In addition, the academic degree as such does not guarantee success in working life because different competences and skills are emphasised in the labour market (Tomlinson, 2008). Degree qualifications have been determined at the European and national levels and include such learning outcomes as knowledge, skills and competences (European Parliament Council, 2008; Ministry of Education and Culture, 2018). Therefore, universities have applied competence-based education and included internships in study programmes in order to enhance students' work-related learning as well as their employment opportunities (e.g. Clarke, 2017). However, despite the fact that the importance of developing different competences is recognised, there is evidence that graduates from different countries have not developed enough competences for working life or else they are not able to utilise the knowledge and skills gained from their university education (Tynjälä, Slotte, Nieminen, Lonka, & Olkinuora, 2006; Brown, Hesketh, & Williams, 2003; Kavanagh & Drennan, 2008). Thus, it can be asked how university education prepares students for working life and how university education meets the

requirements of working life. The evidence shows that there are gaps between the developed competences and the competences needed in working life (Andrews & Higson, 2008; García-Aracil & Van der Velden, 2008; Teichler, 2007; Tuononen, Kangas, Carver, & Parpala, 2019). Therefore, there is a need for research that explores this gap in more detail.

Many university students work while studying which may be beneficial for their employability. The number of working students has increased in many countries over the years, and it seems that, for example in Australia, the UK and New Zealand, almost half of all students work during their studies (Broadbridge & Swanson, 2006; Manthei & Gilmore, 2005; Ryan, Barns, & McAuliffe, 2011; Watts & Pickering, 2000). Similarly, 56% of Finnish university students work while studying in 2017 (Official Statistics of Finland, 2019). At the same time, there is pressure to graduate faster, and working has been considered as one reason for delays in completing studies. There is ample research on how working is related to study success, showing both positive and negative impacts on studying (e.g. Creed, French, & Hood, 2015; Hailikari & Parpala, 2014). Furthermore, research shows that working might have a negative effect on academic performance but a positive effect on the labour market (Sanchez-Gelabert, Figueroa, & Elias, 2017). Working can enhance students' perceptions of their readiness for the transition and facilitate the transition to working life (Kivinen & Nurmi, 2011; Monteiro, Almeida, & Garcia Aracil, 2016; Saloniemi, Salonen, Lipiäinen, Nummi, & Virtanen, 2013; Viuhko, 2006), as well as their self-confidence and confidence in making the transition to working life (Oliver, 2011; Shaw, 2012). Moreover, working in one's own field of study during the final study year helps students to clarify their career goals and future plans (Jackson & Collings, 2018). There is evidence that the nature of work has an impact on whether working is considered as beneficial or detrimental for studies. However, there is also evidence that non-working students who devoted much time to studying experienced problems in their study progression (Triventi, 2014). In addition, evidence shows that students' approaches to learning acted as a mediating factor in whether working was perceived as enhancing or impeding their studies (Hailikari & Parpala, 2014). However, little is known about the relationship between working, learning and study success.

Graduates' employability is about more than job offers and employment status, as the quality of work and subjective experience of employability are also important components (Okay-Somerville & Scholarious, 2017). Employability may mean different things for different students (Knight & Yorke, 2003), and, for example, not all university students intend to find employment in their field of study after graduation. Thus, exploring only graduates' work situation (employed/unemployed) and salary is not enough. There is need for a study that takes into account graduates' subjective experience, such as job satisfaction. In addition, employability and success in working life comprise various elements.

Therefore, the present doctoral thesis uses a mixed-methods approach and several factors to explore employability and career success. Graduates perceived the ability to describe one's own competences as the most important factor in finding employment (Sainio, Carver, & Kangas, 2017). Thus, the ability to describe one's own competences is an important factor to take into account when exploring graduates' employability, and therefore also qualitative methods are needed. In addition, the present doctoral thesis adds a new perspective by taking into account students' learning and study processes when exploring graduates' employability as well as the relationship between working and study success. The study uses a longitudinal design to investigate graduates' transition to working life and their career success. In addition, the study explores the challenges that graduates encounter within a few years of graduation. All of these aspects are explored using both quantitative and qualitative methods in order to better understand how graduates succeed in their careers. This information can be used to develop university education and to support students' employability.

2 Elements of employability and career success

This chapter introduces the theoretical background of the elements related to employability that are the main point of focus in the present doctoral thesis. Employability has been defined differently by various experts, but most of the definitions determine it as a combination of individual and contextual factors, in other words, as consisting of an individual's personal characteristics and competences but also the state of the labour market (Brown, Hesketh, & Williams, 2003; Clarke, 2017). Different employability models exist (Clarke, 2017; Dacre Pool & Sewell, 2007; Knight & Yorke, 2003). The present doctoral thesis utilises the USEM model. The USEM model includes subject understanding (U), skills (S), self-theories and efficacy beliefs (E) as well as metacognition (M) (Knight & Yorke, 2002, 2003). In addition, a model of course provision to develop students' academic competences and employability is utilised (Bennett, Dunne, & Carré, 1999). The model consists of both disciplinary content and generic competences but also workplace experience and workplace awareness. Next, the elements of employability that are relevant in light of the present study are presented in more detail. First, the concept of academic competences, which can be considered to comprise subject understanding and skills, is defined.

2.1 Defining and measuring academic competences

University students are expected to develop not only content knowledge, but also diverse academic competences, such as analytical, communication, teamwork and problem-solving skills (e.g. Van Dierendonck & Van der Gaast, 2013). Several terms are used to refer to these kinds of competences and skills; for example, key skills, generic skills, transferable skills, employability skills, core competences and generic competences as well as generic attributes (Barrie, 2006; Havard, Hughes, & Clarke, 1998; Lizzio, Wilson, & Simons, 2002; Strijbos, Engels, & Struyven, 2015; Suleman, 2018). To avoid confusion, the term *academic competences* is used throughout this thesis. It is used to refer to generic competences that are developed and used in an academic context and that are important in academic work (e.g. Harvard, Hughes, & Clarke, 1998; Mah & Ifenthaler, 2017; Van Dierendonck & Van der Gaast, 2013). DiPerna and Elliot (1999) define academic competences as a multidimensional construct of skills, attitudes, behaviours and academic self-conceptions, including academic skills, study skills, academic motivation and interpersonal skills. Thus, academic

competences can be seen to include generic skills (Dunne, Bennett, & Carré, 2000; Wilson, Lizzio, & Ramsden, 1997). In general, competences can be defined as the capacity to use specific combinations of knowledge, skills and attitudes in appropriate contexts (Baartman & Ruijs, 2011). Furthermore, Delamare Le Deist and Winterton (2005) define a holistic model of competences that includes conceptual competences (cognitive competence and meta-competence) and operational competences (functional and social competence). The competences focused on in the present doctoral thesis are generic, meaning that they can be considered important in any discipline and that they can be developed and utilised in both university and work contexts (Dunne, Bennett, & Carré, 2000; Greenbank, Hepworth, & Mercer, 2009; Strijbos, Engels, & Struyven, 2015). During the transition phase into working life, graduates need to be able to see that the competences developed at university are also transferable and usable in the work context. However, there is evidence that students have difficulties in transferring these skills into different contexts (Smith, Clegg, Lawrance, & Todd, 2007).

Many researches have presented lists of competences that students should develop during their studies (Barrie, 2006; Green, Hammer, & Star, 2009; Jones, 2009; Young & Chapman, 2010). The lists of these competences and skills vary from simple technical skills to complex intellectual abilities and ethical values (Barrie, 2006). There are also discipline-specific lists as well as lists created at different universities and in different countries (Badcock, Pattison, & Harris, 2010; Barrie, 2006; Jones, 2009; Young & Chapman, 2010). However, it can be argued that although different disciplines emphasise different competences, there are still more similarities than differences between disciplines (Krause, 2014).

Different kinds of surveys are used to measure academic competences (DiPerna & Elliot, 1999; Braun & Leidner, 2009; Wilson, Lizzio, & Ramsden, 1997). One of the most frequently used questionnaires is the Australian Course Experience Questionnaire (CEQ), which measures generic skills at the course level (Diseth, 2007; Kreber, 2003; Ramsden, 1991; Richardson & Price, 2003; Wilson, Lizzio, & Ramsden, 1997). In this survey, six skills are measured: problem-solving skills, analytical skills, teamwork, written communication skills, ability to plan work and confidence in tackling unfamiliar situations (Wilson, Lizzio, & Ramsden, 1997). HEsaCom (Evaluation in Higher Education: Self-assessed Competences) is a questionnaire developed and used in Germany. It consists of six domains of competences: knowledge processing, systematic competence, presentational competence, communication competence, cooperation competence and personal competence (Braun & Leidner, 2009). A more condensed version with four competences is also sometimes used (Braun, Sheik, & Hannover, 2011). CHEERS (Careers after Higher Education – a European Research Survey) is used to measure graduates' evaluations of the level of their competences at the time of graduation as well as the extent that these competences are required in their current place of employment (García-Aracil &

Van der Velden, 2008). In the survey, 32 competences are classified according to six factors: organisational competences, methodological competences, participative competences, specialised competences, generic competences and socio-emotional competences.

2.2 Developing academic competences at university

In addition to variation in the instruments measuring competences, there is also variation in how students have perceived the extent to which such competences have developed during their studies. In many studies, students report that they developed different competences during their studies (Badcock, Pattison, & Harris, 2010; Keneley & Jackling, 2011; Monteiro, Almeida, & García-Aracil, 2016). For example, research shows that students score highly on scales measuring critical thinking (Badcock, Pattison, & Harris, 2010; Crebert et al., 2004; Keneley & Jackling, 2011; Kreber, 2003), problem-solving (Creber et al., 2004; Edvarsson Stiwne & Jungert, 2010; Keneley & Jackling, 2011; Kember & Leung, 2005; Kreber, 2003), oral and written communication (Crebert et al., 2004; Keneley & Jackling, 2011; Kreber, 2003) as well as teamwork and interpersonal understanding (Crebert et al., 2004; Keneley & Jackling, 2011; Kreber, 2003). Similarly, the capability to take responsibility for one's own learning and adapt to change and new situations were perceived by students to develop well during their studies (Kember & Leung, 2005). Similarly, graduates perceived that they had developed good time-management skills, learning skills and the ability to manage stress and heavy workloads (Edvarsson Stiwne & Jungert, 2010). However, there is also contradictory evidence showing that communication and collaboration competences were perceived as the least developed in many studies (Kember & Leung, 2005; Keneley & Jackling, 2011). In addition, research shows that university students develop more theoretical knowledge than academic competences (Edvarsson Stiwne & Jungert, 2010; Monteiro, Almeida, & García-Aracil, 2016; Tynjälä et al., 2006).

Most of the studies have explored competences and skills via surveys, but a few qualitative studies can also be found. There are also contradictory results among such qualitative studies. Chan (2010) demonstrated that university students had mainly developed communication skills and thinking from different perspectives. Graduates from political science stated that their critical thinking as well as their analytical and communication competences had developed during their university studies (Abrandt Dahlgren et al., 2006) Similarly, critical thinking, problem-solving and self-managed learning as well communication and teamwork were described as having developed during students' studies (Kember, 2009). However, Andrew and Higson (2008) found that students felt their written communication and teamwork competences had developed, but not their oral

presentation. In addition, communication, teamwork and leadership were mostly mentioned as academic competences that are important to learn at university, whereas critical thinking, problem-solving and negotiation were mentioned less often (Nikitina & Furuoka, 2012). In addition, graduating political science students mentioned that the ability to analyse and solve problems as well as discuss such analyses and solutions are important professional skills (Johansson, Hård af Segerstad, Hult, Abrandt Dahlgren, & Dahlgren, 2008).

Several studies have explored the development of competences during studies using cross-sectional study designs. Third-year students scored higher on self-evaluations of academic competences than did first-year students (Kember, Hong, Yau, & Ho, 2017; Zeegers, 2004). Graduating students scored higher on problem-solving skills than did students in earlier phases of their studies in all disciplines (Badcock, Pattison, & Harris, 2010). Further, graduating science students scored the highest on critical thinking compared to art and engineering students, who scored the highest on written communication (Badcock Pattison, & Harris, 2010). In addition, evidence shows that third-year students had slightly higher scores on a critical thinking test than did first-year students (Roohr, Olivera-Aguilar, Ling, & Rikoon, 2018). Likewise, Clements and Kamau (2013) found a positive relationship between evaluations of competences and study year. A longitudinal study showed that not all students were able to improve their critical thinking skills during their studies (Arum & Roksa, 2011). However, little is known about how students' evaluations of their competences change when entering working life. Rainsbury, Hodges and Burchell (2002) have argued that evaluations of competences change when entering the working world, so that graduates perceive their academic competences as being more important than do students. However, their study was also a cross-sectional study. Thus, there is a need for a longitudinal study that explores change in graduates' evaluations of their competences.

To conclude, previous studies have shown that such cognitive competences as critical thinking and problem solving are develop well during university studies, but there is more variation in social competences, such as collaboration and communication. Given the contradictory results on academic competences, the present doctoral thesis explores how graduates at the time of graduation evaluate their different competences using both survey and interview data in order to form a comprehensive picture of their academic competences. In addition, it examines whether these evaluations of competences change afterwards, once graduates have entered working life.

2.3 Academic competences in relation to approaches to learning

University students' learning has been explored using the concept of approaches to learning. In the 1970s, Marton and Säljö (1976) identified qualitatively different levels at which students processed learning material: deep processing and surface processing. Students engaging in deep processing aimed to understand the meaning of the text, whereas students only engaged in surface processing focused on the text itself. The term approaches to learning was later introduced to describe students' intentions and study processes (Entwistle & Ramsden, 1983). Three approaches to learning can be identified: a deep approach, a surface approach and an organised studying. Students who apply the deep approach to learning aim at understanding and concentrate on analysing and relating ideas, whereas students who apply the surface approach to learning concentrate on memorising information, resulting in fragmented knowledge base (Entwistle, 2009; Entwistle & Ramsden, 1983.) Recently, the term unreflective approach has been proposed to describe the surface approach in the 21st century in more detail, referring primarily to students whose study processes are unreflective and the outcome is fragmented knowledge (Lindblom-Ylänne, Parpala, & Postareff, 2018). The third approach, organised studying, includes good time-management skills, self-regulation and putting effort into studying and it refers to how systematic students are in their studying (Entwistle & McCune, 2004). Organised studying is therefore more an approach to studying than an approach to learning (Entwistle, 2009). It also relates to a sense of being responsible when studying (Entwistle & Peterson, 2004). The third approach was previously called the strategic or achieving approach and described students who aim to achieve high grades (Biggs, 1987; Entwistle & Ramsden, 1983), but it was replaced by the notion of organised studying when the achievement element was removed from the approach (Entwistle, 2009; Entwistle & McCune, 2004).

University students tend to score, on average, the highest on the deep approach and lowest on the surface approach (Herrmann, Bager-Elsborg, & McCune, 2017; Hyytinen, Toom, & Postareff, 2018). There is also evidence that a minority of university students apply a pure surface approach to learning (Parpala et al., 2010; Lindblom-Ylänne, Parpala, & Postareff, 2018). Furthermore, different combinations of approaches to learning can be found among students: students applying a deep approach, students applying a surface approach, organised students and unorganised students applying a deep approach (Hailikari & Parpala, 2014; Parpala et al., 2010).

Previous studies have found a relationship between academic competences and the approaches to learning. The deep approach to learning is positively related to academic competences, while the surface approach is negatively related to academic competences (Kreber, 2003; Diseth, 2007; Richardson & Price, 2003;

Zeegers, 2004; Wilson, Lizzio, & Ramsden, 1997; Lizzio, Wilson, & Simons, 2002). In addition, Kreber (2003) has found that organised studying is positively related to academic competences. Moreover, students' evaluations of their generic competences were positively related to being active in learning; for example, by preparing for the lecture, asking questions and doing projects during lectures (Choi & Rhee, 2014). Deep learning processes, such as integrating information and reflecting on one's learning, were related to critical thinking skills (Nelson Laird, Seifert, Pascarella, Mayhew, & Blaich, 2014). However, Hyytinen, Toom and Postareff (2018) found no relation between critical thinking skills and the approaches to learning among first-year students.

Academic competences are usually perceived and measured as learning outcomes (Lizzio, Wilson, & Simons, 2002; Richardson & Price, 2002), while the different approaches to learning indicate the studying process. This follows the idea proposed by Biggs (1987, 2003) called the 3P model of learning and teaching. In that model, student characteristics and teaching context are presage factors, students' approaches to learning are process factors and competences are seen as product factors. In light of the model, evidence shows that the deep approach to learning is needed in order to develop critical thinking skills (Nelson Laird et al., 2014). However, the relationship between academic competences and approaches to learning is more complex because such competences also play an important role in learning processes. For example, good academic competences can increase the depth of learning among students and the reflectivity of the learner (Hager, Holland, & Beckett, 2002). On the other hand, a lack of these kinds of competences was related to students experiencing difficulties in their studies (Paul, Hinman, Dottl, & Passon, 2009). In addition, Kreber (2003) showed that academic competences was the main predictor of students taking a deep approach to learning, accounting for 14% of the total variance. In turn, academic competences was the main predictor of students adopting an organised studying approach (12%). Regarding the surface approach, academic competences predicted 7.5% of the total variance and the relationship between competences and the surface approach was negative. Furthermore, it can be argued that academic competences and approaches to learning are intertwined because approaches to learning can be considered to include elements of different competences. For example, the deep approach to learning includes such elements as relating ideas and use of evidence (Entwistle & Peterson, 2004), which are closely related to such competences as the ability to apply knowledge and critical thinking. Therefore, the present doctoral thesis explores how graduates' evaluations of their academic competences are related to their approaches to learning using both survey and interview data in order to obtain a comprehensive picture of these complex relations between academic competences and approaches to learning.

2.4 Work experience in relation to study success and learning

Many students work during their studies and acquire work experience that can be important in finding employment after graduation as well as for their future employability. Studies have presented contradictory results concerning the relationship between working and grades or study progression (Salamonson, Everett, Koch, Andrew, & Davidson, 2012; Patel, Brinkman, & Coughlan, 2012). On the one hand, evidence shows that working enhances the motivation to achieve better grades (Wang, Kong, Shan, & Vong, 2010). Working can also provide opportunities to apply theories to the workplace and to develop generic skills (Blackwell, Bowes, Harvey, Hesketh, & Knight, 2001; Evans, Gbadamosi, & Richardson, 2014). On the other hand, there is evidence that working students achieve lower grades than non-working students (Hunt, Lincoln, & Walker, 2004; Salamonson et al., 2012). A few studies have also found no relationship between working and grades (Nonis & Hudson, 2006; Sulaiman & Mohezar, 2006).

Evidence shows that the number of working hours is related to study success (Callender, 2008; Hunt, Lincoln, & Walker, 2004). Working a limited number of hours per week is not negatively related to study success (Darolia, 2014; Hunt et al., 2004; Triventi, 2014). Similarly, research shows that working a few hours did not increase the risk of dropping out compared to non-working students (Hovdhaugen, 2013; Moulin, Doray, Laplante, & Street, 2013). However, there is evidence that the relationship between hours of work and study success is non-linear. In other words, both working many hours and not working at all can be related to poorer study success (Hovdhaugen, 2013 Moulin et al., 2013). Many studies have shown that full-time work slows down progress in one's studies (Darolia, 2014; Katsikas, 2013; Triventi, 2014; Viuhko, 2006). In addition, Theune (2015) found that both part-time and full-time work prolonged students' graduation date, but full-time work prolonged it more.

The nature of work is also an important factor when considering the impact on studying. Work that is related to one's own study field increased students' grade point average (Brooks & Youngson, 2016; Patel, Brinkman, & Coughlan, 2012; Wang et al., 2010). Similarly, grades were lower for those students who engaged in full-time work not related to their study field (Sanchez-Gelabert, Figueroa, & Elias, 2017). In addition, working in one's own study field was related to a faster study pace (Haarala-Muhonen, Ruohoniemi, & Lindblom-Ylänne, 2011). In the present doctoral thesis, both the amount and nature of work are taken into account when exploring the relationship between working and study success.

Research shows that students experience working while at the same time studying differently. For example, students with good organising skills perceive working as an enhancing factor, whereas students with weaker time-management and self-regulation skills perceive working as an impeding factor (Hailikari &

Parpala, 2014; Haarala-Muhonen, Ruohoniemi, & Lindblom-Ylänne, 2011). There is not much research on how working is related to the learning process, and further, to study success. However, there is more evidence that the approaches to learning are related to grades and study progress, indicating that the deep approach to learning and organised studying are positively related to study success and the surface approach negatively related to study success (Diseth, 2007; Duff, 2004; Herrmann, Bager-Elsborg, & McCune, 2017; Postareff, Mattsson, Lindblom-Ylänne, & Hailikari, 2017; Rytkönen, Parpala, Lindblom-Ylänne, Virtanen, & Postareff, 2012). The present study explores whether students' approaches to learning act as intervening factors between work experience and study success. In addition, it examines how graduates perceive the usefulness of their work experience while taking into account also the nature of the work.

2.5 Metacognition and self-efficacy beliefs as important factors in employability

Metacognition and self-efficacy beliefs are part of the USEM model of employability (Knight & Yorke, 2003). Metacognition as a part of employability means that a graduate needs to be aware of his/her learning process and be able to reflect on his/her own actions (Knight & Yorke, 2003). Knight and Yorke (2003) describe metacognition as 'knowing what you know, how it can be used and knowing how you can get new knowings'. Metacognitive skills are especially important for analysing one's competences and skills. In the transition process when seeking employment, a graduate's ability to analyse her/his competences is essential. In addition, metacognitive skills are important from the perspective of lifelong learning, which is needed in order to manage in a changing working world (Knight & Yorke, 2003). Metacognitive skills can be developed during studies and through work. Work experience has a positive influence on students' ability to articulate their skills and knowledge and on how they felt their skills transferred to the workplace (Ehiyazaryan & Barraclough, 2009). However, there is evidence that many students have difficulties in reflecting on their learning, indicating a lack of metacognitive skills (Lindblom-Ylänne, 2003; Smith et al., 2007). In addition, research shows that students do not recognise the skills they have acquired at work (Neill, Mulholland, Ross, & Leckey, 2004).

Self-efficacy belief refers to a person's belief in his/her ability to succeed in a particular situation (Bandura, 1977). Self-efficacy is also important in terms of using different skills (Chan, 2010), meaning that students must have confidence in their ability to use their skills in practice. Some studies have measured students' academic competences by asking them about their confidence in using different competences or about confidence in having acquired different academic competences (Grace, Weaven, Bodey, Ross, & Weaven, 2012; Parker, 2006; Van

Dinther, Dochy, Segers, & Braeken, 2013). There is evidence that self-efficacy beliefs are related to students' evaluations of their competences (Van Dinther, Dochy, Segers, & Braeken, 2014). Graduates need to have strong self-efficacy beliefs because such beliefs play a key role in career choice and development (Bandura, 1997). There is evidence that graduates with strong self-efficacy beliefs in finding a job have more interviews and job offers than graduates with lower self-efficacy beliefs (Moynihan, Roehling, LePine, & Boswell, 2003). The concept of self-confidence is closely related to self-efficacy beliefs in that both can reflect a belief in one's future employability and success in working life. Self-confidence has been found to develop in the context of both university (Sleap & Reed, 2006) and work life (Ehiyazaryan & Barraclough, 2009; Shaw & Ogilvie, 2010). Furthermore, there is evidence that confidence in one's competences is important during the transition phase (Okay-Somerville & Scholarios, 2017). In the present doctoral thesis, metacognition is explored in light of how well graduates recognise and describe the academic competences they developed at university and have needed in working life. Self-efficacy beliefs are explored via graduates' confidence in their future success in working life at the time of their graduation.

2.6 Usefulness of university education

Making a successful transition from university to working life requires an ability to employ one's education and academic competences in real working-life contexts (Harvey, 2000; Tomlinson, 2008). The usefulness of a university education can be evaluated via the developed competences during university education and satisfaction with one's university education after making the transition to working life. Thus, graduates' evaluations of their competences, satisfaction with their degree and their early career success can be treated as indicators of a successful transition to working life. In addition, there is evidence that self-evaluations of competences are related to satisfaction with the course (Braun & Leidner, 2009; Grace et al., 2012; Lizzio, Wilson & Simons, 2002) or the degree (Tuononen, Kangas, Carver, & Parpala, 2019). Students reporting that they developed more competences during their studies rated more positively their satisfaction with the course (Grace et al., 2012; Lizzio, Wilson & Simons, 2002) or degree (Tuononen et al., 2019). Furthermore, there is contradictory evidence regarding graduates' level of satisfaction with their degree. On the one hand, many graduates have reported feeling that their degree had improved their employment situation, but at the same time other graduates reported feeling that the degree did not enable them to find a job they wanted or a job that met their expectations (Gedye, Fender, & Chalkley, 2004; Teichler, 2007). Similarly, there is evidence that students are generally satisfied with their education but less satisfied with the

relationship between their studies and working life (Edvarsson Stiwne, & Alves, 2010). In addition, graduates who reported having developed a number of competences during their studies perceived their education as being more useful for their current job compared to graduates who reported that they had developed less competences (Vaatstra & De Vries, 2007). Thus, it is interesting to explore how graduates' evaluations of their academic competences are related to their satisfaction with the degree.

2.7 Graduates' career success

Graduates' career success has been explored in many studies (Braun, Sheikh, & Hannover, 2011; Vermeulen & Schmidt, 2008). Career success can be divided into objective and subjective career success (e.g. Van Dierendonck & Van der Gaast, 2013). Objective or extrinsic career success is usually measured by one's employment situation and salary and subjective or intrinsic career success by an individual evaluation of job satisfaction (Judge, Higgins, Thoresen, & Barrick, 1999; Kuijpers, Schyns, & Scheerens, 2006; Vermeulen & Schmidt, 2008). There is evidence that most graduates find a job within one and half years of graduating, of whom 54% have an academically oriented job and 77% a job that matches their study field (Semeijn, Van der Velden, Heijke, Van der Vleuten, & Boshuizen, 2006). Only 8% of graduates reported not having found work four years after graduation (Teichler, 2007). In Finland, statistics from 2016 show that a total of 83% of graduates with a master's degree found employment one year after graduation, while 9% were unemployed (Official Statistics of Finland, 2018). Subjective career success refers to individuals' evaluations of how they have progressed in their career in relation to their initial objectives (Rothwell & Arnold, 2007). Research shows that university students may be completely unaware of the challenges awaiting them after graduation and that might lead to disappointment when their expectations and employment opportunities differ (Perrone & Vickers, 2003). Students might have high expectations regarding future work success, and thus some students may become distressed about the demands placed on them (Dunne, Bennett, & Carré, 2000). In the present study, both objective and subjective career success are used to explore graduates' career success by focusing on graduates' work situation and history and their job satisfaction.

There is evidence that self-assessments of the development of competences during university studies are related to graduates' career success or job satisfaction (Baruch & Peiperl, 2000; Braun, Sheikh, & Hannover, 2011; Mora, Garcia-Aracil, & Vila, 2007; Semeijn et al., 2006; Vermeulen & Schmidt, 2008). More precisely, systematic competences such as time management skills and the ability to organise work effectively are related to career success (Braun, Sheikh, & Hannover, 2011). In addition, problem-solving skills and strategic thinking are

related to career satisfaction (Van Dierendonck & Van der Gaast, 2013). Furthermore, analytical and language skills in study programmes may increase job satisfaction in any disciplines (Gajderowicz, Grotkowska, & Wincenciak, 2014). There is evidence that the possibility to use knowledge and competences at work is related to job satisfaction (Mora, García-Aracil, & Vila, 2007; Teichler, 2007). Graduates' evaluations of their competences were positively related to having a job requiring an academic education (Semeijn et al., 2006). Moreover, the match between required and developed competences increased job satisfaction (García-Aracil & Van der Velden, 2008).

Graduates' transition to working life and career success can be evaluated by the challenges they encounter. Previous studies have revealed that unemployment, temporary contracts and part-time employment are the challenges that graduates have faced in working life (Edvarsson Stiwne & Alves, 2010; Harvey, 2000; Teichler, 2007). In general, there is evidence that graduates in non-professional fields perceived more difficulties in making the transition to working life and have poorer quality jobs as well as have less labour market opportunities than graduates in professional fields (Okay-Somerville & Scholarios, 2017; Puhakka, Rautopuro, & Tuominen, 2010). Research also shows that graduates from humanities and the social sciences are less satisfied with their jobs (García-Aracil & Van der Velden, 2008). A previous study of Finnish graduates found that the regional employment situation, a poor employment situation in the field, inadequate networks and a lack of work experience were most often reported as reasons for difficulties in finding employment (Tuominen, Rautopuro, & Puhakka, 2011). Graduates who reported having difficulties in finding appropriate work began to wonder whether their education had been worth it (Brooks & Everett, 2009). To conclude, Figure 1 summarises the key concepts examining employability and a successful transition to working life in the present doctoral thesis. Note that the figure simplifies the interrelations between the concepts, as the purpose of the figure is to clarify the main concepts in this study.

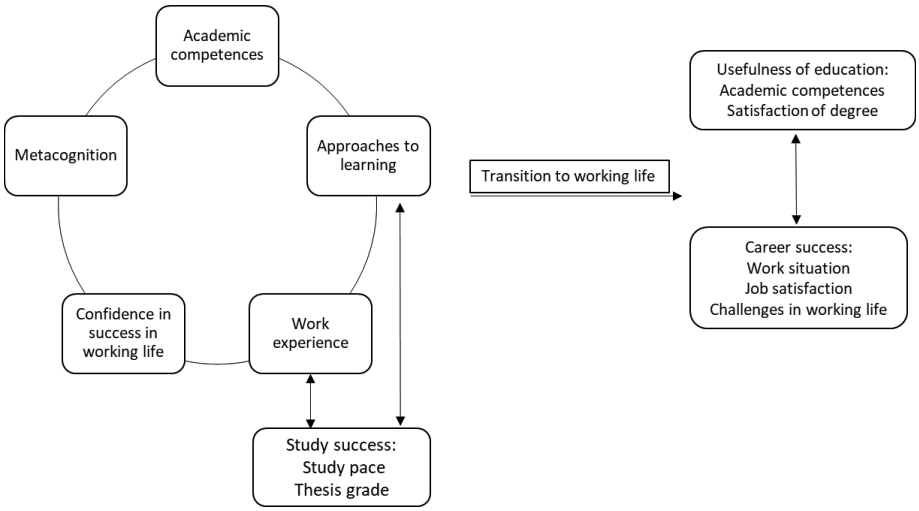

Figure 1. Key concepts examining employability and successful transition to working life in the present doctoral thesis.

3 The aims of the doctoral thesis

The main aim of this doctoral thesis is to explore university graduates' employability and transition to working life. In this thesis, employability is explored from the perspective of graduates' academic competences, learning and work experience as well as their career success. The first aim is to explore graduates at the time of graduation and investigate their evaluations of their academic competences, their confidence in how successful they are in working life and how they see the usefulness of their work experience. The aim is to explore what kinds of profiles can be identified based on those evaluations. The second aim is to explore the complex relations between academic competences and approaches to learning. The third aim is to investigate the relationship between work experience, approaches to learning and study success. Finally, the fourth aim is to explore graduates' evaluations of the usefulness of their degree and career success three years after graduation. In more detail, the purpose is to explore whether graduates' evaluations of their academic competences change between the time of graduation and three years after graduation and how satisfied they are with their degree from a working life perspective. In addition, the aim is to explore graduates' career success from the perspective of their work situation and job satisfaction. Furthermore, the aim is to explore the challenges that graduates encounter in working life after graduation.

The present doctoral thesis utilises both quantitative and qualitative methods as well as group- and individual-level analysis in order to form a more comprehensive picture of the phenomenon. Most previous studies have explored students' or graduates' competences using surveys (Badcock, Pattison, & Harris, 2010; Kember & Leung, 2005; Keneley & Jackling, 2011; Lizzio, Wilson, & Simons, 2002; Monteiro, Almeida, & García-Aracil, 2016). Only a few qualitative studies have explored students' or graduates' generic competences (Andrews & Higson, 2008; Barth et al., 2007; Chan, 2010; Johansson et al., 2008). Previous studies have presented contradictory evidence by showing that graduates score high on competences measured via surveys (Keneley & Jackling, 2011; Arnold, Loan-Clarke, Harrington, & Hart, 1999), but when interviews are used they express doubts about their competences (Chan, 2010). In order to explore how graduates are able to reflect on their competences, it is important to explore how they are able to evaluate and describe these competences, and thus, qualitative research is needed (Study I).

There is not much research focusing on the relationship between academic competences and learning, and most of the existing studies have been quantitative in nature (Kreber, 2003; Lizzio, Wilson, & Simons, 2002). Kreber (2003) explored how academic competences, among other factors, explained variations in the

deep, surface and organised studying. The present study explores this relationship the other way around. More precisely, it assesses how approaches to learning explain variations in different academic competences following the 3P model proposed by Biggs (1987, 2003). This doctoral thesis is a mixed-methods study that clarifies the complex interrelationships between academic competences and approaches to learning by using both quantitative and qualitative approaches (Study II).

Studies exploring the relationship between work and study success have presented contradictory evidence that working is both positively and negatively related to study success (Patel, Brinkman, & Coughlan, 2012; Salamonson et al., 2012). In addition, there is evidence that the nature of the work is an important factor to take into account (Broadbridge & Swanson, 2005). Usually students' work experience is generally non-academic, for example working in the service sector and thus work is often unrelated to their study fields and future careers (Broadbridge & Swanson, 2006; Callender, 2008;Hunt, Lincoln, & Walker, 2004; Robotham, 2009). Thus, the present study takes into account the nature and amount of work and it measures study success using various variables: study pace and thesis grade. There is evidence that students' approaches to learning are related to study success and to students' perceptions of whether working during their studies impeded or enhanced their studying (Haarala-Muhonen, Ruohoniemi, & Lindblom-Ylänne, 2011; Hailikari & Parpala, 2014). Therefore, approaches to learning are important factors to be taken into account when exploring how working is related to study success (Study III).

Graduates' successful transition to working life can be evaluated from the perspective of their career success and perception of the usefulness of their university education. Research shows that evaluations of competences and satisfaction with course or satisfaction with the degree are related (Grace et al., 2012; Lizzio, Wilson, & Simons, 2002). Furthermore, there is evidence that the competences that graduates develop at the university are related to their career success (Braun, Sheikh, & Hannover, 2011; Van Dierendonck & Van der Gaast, 2013; Vermeulen & Schmidt, 2008). However, there are a lack of longitudinal studies on this relationship. Therefore, the present doctoral thesis explores graduates' transition to working life by following graduates from the graduation phase into working life. In more detail, the aim is to explore how graduates perceive the usefulness of their university education and career success three years after graduation. In addition, this study explores possible changes in evaluations of academic competences (Study IV). Career success can be also evaluated by the challenges that graduates encounter in working life. However, only a few studies have explored difficulties in working life from the graduates' own perspective (Perrone & Vickers, 2003; Tuominen, Rautopuro, & Puhakka, 2011). Therefore, it is important to explore the transition from university to working life from the graduates' perspective and at the individual level (Johnston, 2003). In addition,

the purpose of the present doctoral thesis is to explore graduates' own evaluations of the challenges they face in working life and to investigate whether graduates differed in terms of the challenges they encounter in working life (Study IV).

The research questions of this doctoral thesis are as follows:

1. How do graduates perceive of their employability at the time of graduation? (Study I)

a) How do graduates evaluate their academic competences, confidence in success in working life and the usefulness of their work experience at the time of graduation?

b) What kinds of profiles can be identified among these graduates?

2. How are academic competences and approaches to learning interrelated? (Study II)

a) What does the survey data tell us about the relationship between academic competences and approaches to learning?

b) How does the interview data deepen our understanding of the relationship between academic competences and approaches to learning?

3. How are students' work experiences and approaches to learning related to both their study pace and thesis grade? (Study III)

4. How do graduates evaluate the usefulness of their university education and career success three years after graduation? (Study IV)

a) How do graduates' evaluations of their academic competences change between graduation and three years after graduation?

b) What kinds of competences do graduates experience they developed at university and have needed in working life?

c) How satisfied are graduates with the university degree after graduation?

d) How satisfied are graduates with their jobs?

5. What kinds of challenges do graduates encounter in working life? (Study IV)

4 Contexts of the study

The University of Helsinki is a multidisciplinary university where it is possible to study more than 200 subjects. It includes eleven faculties on four campuses: Human Sciences, Science, Medicine and Life Science. The largest faculties are the Faculty of Science, the Faculty of Arts and the Faculty of Behavioural Science (since 2016, the Faculty of Educational Sciences). A total of 5301 degrees were completed in 2013, when participants in the present study graduated. Of these 5301 degrees, 2607 were bachelor's degrees and 2694 were master's degrees (The University of Helsinki Annual Report). Finnish universities adopted a two-level degree system, bachelor's degree and master's degree, in 2005. As in most countries following the Bologna Declaration, the bachelor's degree (180 credits) is normally completed in three years and the master's degree (120 credits) in two years. In Finland, the bachelor's degree is an intermediate degree on the way towards the master's degree, and there is no selection process in the transition from bachelor's level studies to master's level studies. Most students intend to complete a master's degree. However, there are two exceptions when students complete only a bachelor's degree: kindergarten teacher education and the Bachelor of Science in Pharmacy degree. In addition, in the medical fields (medicine and veterinary medicine) the higher academic degree is the licentiate degree, and it can be completed in six years of full-time study. In Finland, all master's degrees are research-oriented degrees, meaning that all students complete a master's thesis, even if they intend to pursue a profession such as becoming a doctor, lawyer or teacher.

In 2005, the Universities Act concerning the normative duration of a degree was implemented in Finland (the University Act 556/2005). According to the act, students who have not completed their bachelor's degree in four years and a master's degree in the subsequent three years need to write a personal study plan for the faculty. In general, students should complete an average of 55 study credits per academic year. The Finnish system enables the prolongation of studies and a slower study pace without negative consequences for students. Study time is not limited, meaning that uncompleted courses, low study success or a small number of study credits will not be penalised by a student forfeiting her/his right to remain enrolled in the university. Therefore, dropout rates are relatively low in Finland (6.9 % in 2013) (Official Statistics of Finland, 2015b), but there are problems with graduation times. For example, 53 per cent of students completed their degree in five-and-a-half years in 2014 (Official Statistics of Finland, 2016).

In Finland, the completion of a degree is tuition free and students are able to obtain financial benefits for their studies from the government. The financial aid system consists of study grants, housing supplements and student loans. To

receive this assistance, students need to complete at least five study credits per month of financial aid and at least 20 study credits per year of the expected 60 yearly credits. However, if a student can show good reason for slow progress in their studies, such as illness, he/she may continue to receive the assistance. In total, university students are able to receive financial aid for 55 months. Student may also lose their grant or they might have to return the grants if they earned too much during the year. Despite the fact that students are able to obtain financial support for their studies and that the education itself is free, most work during their studies. For example, 58 per cent of Finnish university students worked during their academic studies in 2013 (Official Statistics of Finland, 2015a).

In general university graduates do not have much trouble finding employment after graduation in Finland. However, the participants in the present thesis graduated at a time (2013) when the employment situation was more difficult for university graduates. Because of the recession in Finland, the unemployment rate for those graduating with a master's degree increased by 19% compared to the previous year. In 2016, when the participants were re-contacted, employment figures had improved somewhat after a four-year decline. In 2016, a total of 83% of graduates with a master's degree were employed one year after graduation and only 9% were unemployed (Official Statistics of Finland, 2018).

5 Methodology

The present doctoral thesis consists of four sub-studies in which graduates were examined at two stages: at the time of graduation and three years after graduation. Figure 2 presents an overview of a longitudinal mixed-methods study design.

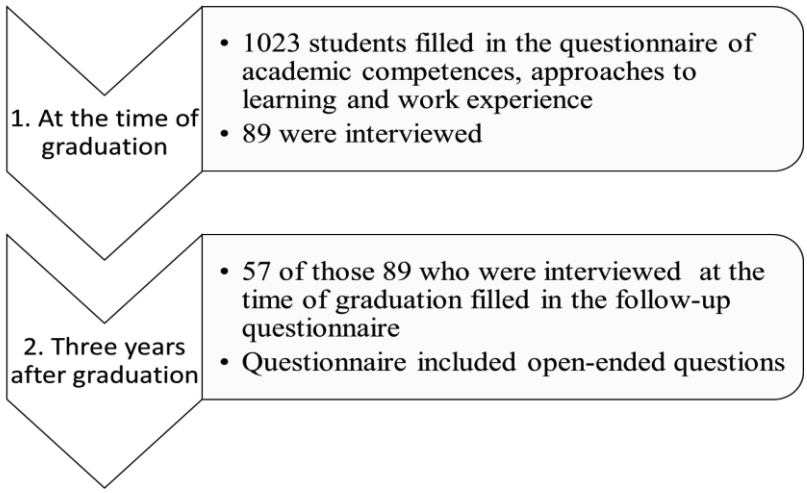

Figure 2. A longitudinal mixed-methods study design.

5.1 A mixed-methods approach

The present doctoral thesis applied a mixed-methods approach that combines both quantitative and qualitative methods. A mixed-methods approach can be considered as a third research paradigm, which can also prevent the distribution of qualitative and quantitative research (Johnson, Onwuegbuzie, & Turner, 2007). The main reason for using a mixed-methods approach in the present study was to provide a better understanding of the phenomenon and to validate the results of different methods (Teddlie & Tashakkori, 2009). It makes it possible to obtain new insights into the research questions (Johnson, Onwuegbuzie, & Turner, 2007), and to use the strengths and minimise the weaknesses of both methods (Johnson & Onwuegbuzie, 2004). In addition, a mixed-methods approach is also recommended when analysing change over time (Lindblom-Ylänne, Parpala, & Postareff, 2014).

With a mixed-methods study, quantitative and qualitative methods can be combined in several ways (Teddlie & Tashakkori, 2009), and they can be used in

different stages, for example during the data collection stage, the analysis stage or all of the stages combined (Johnson, Onwuegbuzie, & Turner, 2007). Qualitative data analysis can be used in a parallel, concurrent or sequential manner in order to enhance the interpretation of quantitative results (Onwuegbuzie & Leech, 2004). This doctoral thesis used mixed methods at the whole thesis level, but also in individual sub-studies. Teddlie and Tashakkori (2009) have identified five strategies for using mixed methods: 1) parallel mixed data analysis, 2) sequential mixed data analysis, 3) conversion mixed data analysis, 4) multilevel mixed data analysis and 5) fully integrated mixed data analysis. *Parallel mixed data analysis* consists of an independent process of quantitative and qualitative data analysis, and it was used in Studies II and IV in the present doctoral thesis. In practice, parallel analyses can be conducted so that the results of other analyses shape the present analysis. Although analyses are conducted independently, they provide an understanding of the phenomenon (Teddlie & Tashakkori, 2009).

Sequential mixed data analysis occurs when a qualitative analysis follows after a quantitative analysis, or vice versa (Schoonenboom & Johnson, 2017). Thus, a qualitative or quantitative analysis emerges or depends on the previous analysis phase (Schoonenboom & Johnson, 2017; Teddlie & Tashakkori, 2009). The difference between parallel and sequential data analysis is that with sequential analysis, not all data are collected at the same time because the previous analysis phase has an effect on the subsequent one. In the present doctoral thesis, sequential mixed data analysis was not applied in a single study but throughout the whole doctoral thesis. *Conversion mixed data analysis* means that qualitative data are converted into numbers, or vice versa (Teddlie & Tashakkori, 2009). In the present study, this strategy was used in Study IV, in which the categories that emerged from the open answers were converted into numbers in order to explore quantitatively differences between the graduate profiles. *Multilevel mixed data analysis* occurs when analyses are carried out at different levels. In the present study, this strategy was applied in Study II, in which quantitative analysis was used at a group-level, but interviews were analysed both at the group- and at an individual-level. In addition, in Study IV open answers were first analysed at the group level and then at the individual level. *Fully integrated mixed data analysis* occurs when qualitative and quantitative data analysis are interactively mixed. This kind of analysis can be characterised as iterative, reciprocal and interdependent (Teddlie & Tashakkori, 2009). The present study did not include such a strategy.

5.2 Participants

A total of 1023 graduates completed an electronic questionnaire at the time of their graduation. In the questionnaire, they were asked to participate in an interview and provide their contact information. Then, the voluntary participants were contacted. A total of 83 graduates were interviewed, and of those 57 participated in the follow-up study by filling in the questionnaire. Next, the participants are presented in more detail in Studies I–IV.

In Study I, the data consisted of 58 interviews with master's degree graduates. The majority of the graduates that were interviewed were female (76%, n = 45). The ages varied from 25 to 47 years (M = 29). Most of the graduates, 36% (n = 21), were from the Faculty of Arts, while 19% (n = 11) were from the Faculty of Behavioural Sciences and 17% (n = 10) from the Faculty of Social Sciences. All of the participants had acquired work experience during their studies, and most (75%) had work experience related to their field of study. Altogether, 33 (57%) of the graduates had worked both during semesters and during summer. Nineteen (33%) had only worked during semesters; of these, seven had worked full time. One student had only worked during holidays. Most of the graduates, 25 (43%), had worked less than 20 h per week, while eleven (19%) had worked 20–34 h per week and 22 (38%) had worked more than 35 h per week.

In Study II and Study III, the participants included 1023 graduates who had filled in the questionnaire at the time of their graduation. The participants who filled in the questionnaire included both bachelor's (43%) and master's (57%) degree graduates representing all eleven faculties at the University of Helsinki. Most of the participants were from the Faculty of Arts (N = 598, 59%), the Faculty of Behavioural Sciences (N = 115, 11%) and the Faculty of Social Sciences (N = 59, 6%). These are large faculties in terms of the number of degrees completed in 2013 (University of Helsinki Annual Report 2013). Of the participants, 77% (N = 786) were female and 23% (N = 232) were male. Five did not report their gender. In 2013, the total percentage of female students at the university was 64%. Thus, female students were slightly overrepresented in the data used in this doctoral thesis. The ages varied from 21 to 69 years (M = 30, SD = 7.3): more than a third of the participants were younger than 26 years, half were 26–32 years of age and 16% were more than 32 years of age. Most of the participants (59%) had completed the master's degree in 7 to 10 years, 28% in 5 or 6 years and 13% after 11 years.

In addition to the survey data, the data in Study II consisted of 83 interviews, 58 of which were the same master's degree graduates as in Study I. In addition to them, 24 interviews with bachelor's degree graduates' were added to the data. Most of the interviewed graduates (N = 83) represented humanities, social sciences and the behavioural sciences. The majority of the participants were female (72%, n = 59), and their ages varied from 23 to 59 years (M = 30): 17%

were less than 26 years of age, more than half were 26–31 years of age (59%) and 24% were more than 32 years of age.

In Study IV, 57 of graduates who had been interviewed at the time of their graduation (N = 83) filled in the follow-up questionnaire three years after their graduation. Thus, the response rate was 69%, which can be considered quite good given the longitudinal design. Most of the graduates were from the Faculty of Arts (n = 23, 40%), the Faculty of Behavioural Sciences (n = 11, 19%) and the Faculty of Social Sciences (n = 9, 16%). Most of them were female (67%, n = 39). The mean age was 33 years (SD = 6.2). Thus, in terms of other background information the participants were quite representative of the sample at the time of graduation.

5.3 Materials

5.3.1 Surveys

In the present doctoral thesis, two surveys were used at the two stages: at the time of graduation and three years after graduation. The surveys were based on the HowULearn questionnaire (prev. Learn questionnaire) (Parpala, & Lindblom-Ylänne, 2012), which measures students' approaches to learning, among other things. In addition, part of the HowULearn questionnaire measures students' work experience during their studies, which has been used for many years by the Career Services Unit of the University of Helsinki. The HowULearn questionnaire was used to answer research questions 2 and 3. Next, different measuring tools are presented in more detail. In addition to the HowULearn-questionnaire, a follow-up questionnaire was created based on a Finnish national university graduates' career survey coordinated by the Aarresaari network of Academic Career Services (Aarresaari.net) and international career surveys and theories (e.g. Braun, Sheikh, & Hannover, 2011; Vermeulen & Schmidt, 2008).

Academic competences

Graduates' evaluations of the development of their academic competences were measured using the HowULearn questionnaire (Parpala & Lindblom-Ylänne, 2012). The inventory included seven items in which the graduates were asked to evaluate how their university studies had helped them develop different academic competences, such as analysing and structuring information, critical thinking, applying knowledge, collaboration and communication skills, and developing new ideas. The items measuring academic competences were derived partly from a review of the literature and partly from examining previous inventories, for example the Course Experience Questionnaire (CEQ) (e.g. Tynjälä et al., 2006;

Wilson, Lizzio, & Ramsden, 1997). A five-point Likert scale (1= totally disagree, 5 = totally agree) was used. The same items were also used in a follow-up questionnaire in order to explore changes in graduates' evaluations of their academic competences.

Approaches to learning

The HowULearn questionnaire (Hailikari & Parpala, 2014; Parpala & Lindblom-Ylänne, 2012) was used to measure students' approaches to learning. A 12-item version was used, modified from the Approaches to Learning and Studying Inventory (ALSI) (Entwistle & McCune, 2004) and the Learning and Teaching questionnaire (LSQ) (Entwistle, McCune, & Hounsell, 2003). In addition two items were from the Revised Learning Process Questionnaire (R-LPQ) (Kember, Biggs, & Leung, 2004). In the items measuring students' approaches to learning, students were asked to describe how they had been studying in general. A five-point Likert scale (1 = totally disagree, 5 = totally agree) was used. The items measuring approaches to learning were based on three scales: deep approach, surface approach and organised studying approach. The HowULearn questionnaire and the scales of approaches to learning are widely used and have been validated in both Finnish and international contexts (e.g. Herrmann, Bager-Elsborg, & Parpala, 2016; Karagiannopoulou, Naka, Kamtsios, Savvidou, & Michalis, 2014; Parpala & Lindblom-Ylänne, 2012; Parpala, Lindblom-Ylänne, Komulainen, Litmanen, & Hirsto, 2010; Ruohoniemi, Forni, Mikkonen, & Parpala, 2017; Rytkönen et al., 2012; Sakurai, Parpala, Pyhältö, & Lindblom-Ylänne, 2016). The validation was also done in the present doctoral thesis in Study III.

Work experience

As part of the HowULearn questionnaire, students were asked to answer questions concerning their work experience and the nature of this experience. The nature of the work experience was divided into three types: *own academic work, other academic work and non-academic work*. *Own academic work* meant work that was related to the student's discipline or major. *Other academic work* meant work that was academic in nature, but differed from the student's own study field. The third type, *non-academic work*, had no connection to university studies. Students were asked how many hours they performed different kinds of work on average per week during their final study year. The scale was as follows: 1 = none, 2 = less than 20 hours and 3 = more than 20 hours. Because the students may have had different kinds of work experience, we created a variable called work experience in which 0 = no work experience, 1 = own academic work, 2 = non-academic work, 3 = non-academic work experience and 4 = both own academic work and non-academic work experience.

Study success

Study success was operationalised as study credits and thesis grade. Study credits (ECTS, European Credit Transfer and Accumulation System) and thesis grades were gathered from the Student Register at the University of Helsinki. Study pace was operationalised as the average number of credits earned per academic year. The mean variable was created by dividing received study credits by the number of semesters. Theses are obligatory in both bachelor's degree and master's degree programmes and are usually completed at the end of a student's studies. Bachelor's theses are graded on a scale of 1 to 5, in which 1 represents the lowest grade and 5 the highest. Prior to the Bologna process, however, evaluation on a pass-fail scale was also used. Because of the different evaluation strategy, these grades were not included in the analyses. Master's theses are graded using the Latin language, and these grades are recorded on a scale of 1 to 7, in which 7 indicates an excellent grade. Standardised grades, in which the grade is deducted from the mean and divided by the standard deviation, were used to analyse the study success of both bachelor's degree and master's degree students together. A total of 133 thesis grades were missing from the data; of these, 41 students did not report their student number, and thus their information could not be retrieved from the Student Register. The students with incomplete information concerning their study success were not included in the final study success analysis.

Follow-up questionnaire

The follow-up questionnaire was used to answer research questions 4 and 5. The follow-up questionnaire included questions regarding the usefulness of university education and career success. The variables and scales for the follow-up questionnaire are presented in more detail in Attachment 2.

Usefulness of education

Usefulness of education was explored using items measuring the development of academic competences at university and satisfaction with the degree. The items measuring the competences were the same items used at the graduation phase (see academic competences above). Satisfaction with the degree was measured using three items: how satisfied you are with your degree in terms of career, how well your current job corresponds to your academic education and would you choose the same study field again if you were start studying now (yes/no). A five-point Likert scale (1 = totally disagree, 5 = totally agree) was used to measure satisfaction with the degree. The analysis also included open-ended questions as to what had been the most important skills that you learned at university and used in working life and what you would have needed to learn in more depth at the university.

Career success

Career success was examined by asking about graduates' employment situation, their work history after graduation, their level of job satisfaction and evaluating the reasons given for difficulties in finding employment. In addition, the participants were also asked about challenges in working life via open-ended question: What kinds of challenges have you faced in working life? The questions concerning career success were the same or modified from the national university graduates' career survey coordinated by the Aarresaari network of Academic Career Services (Aarresaari.net). In addition, previous studies and theories on career success were used for developing this part of the thesis. For example, subjective (job satisfaction) and objective (e.g. work situation) career factors were included based on previous studies (Adele & Spurk, 2009; Vermeulen & Schmidt, 2008).

5.3.2 Interviews

The interviews were used to answer research questions 1, 2 and 3. The interviews were conducted at the time of graduation and they were used in Studies II and III. The semi-structured interviews focused on graduates' perceptions of their academic competences, focusing in particular on how different academic competences had developed during their studies and whether they felt that they possessed enough competences for working life after graduating. In addition, they were asked to describe the development of the academic competences specifically asked about in the survey. The interview themes were formulated on the basis of the USEM model and included elements of understanding, skills, efficacy beliefs and metacognition (Knight & Yorke, 2003). The interviews also dealt more broadly with the graduates' studying and learning at the university. For example, the students were asked how they usually studied at the university and about their choice of academic degree. Moreover, the graduates' work experience gained at the time of their studies, their work situation at the time of graduation and their thoughts about their future success in working life were in focus as well. Clarifying questions were asked if the responses were unclear, less detailed or too general. The interview questions varied somewhat depending on the graduates' situation, for example whether a bachelor's degree graduate had the intention to continue with master's degree studies or enter working life or whether the graduate had a job or not. The interviews were conducted by the first author. The interviews lasted from 24 to 99 minutes, and they were recorded and transcribed verbatim. The extracts selected for Study I and Study II were later translated into English.

5.4 Analyses

The present doctoral thesis applied multilevel mixed-methods analysis using both quantitative and qualitative analysis at different levels: group level and the individual level. In the quantitative studies (Study II, III and IV), the first phase involved screening the data and examining a number of missing values. Regarding academic competences and approaches to learning, the missing value percentages were so small (they varied from 0.3% to 1.5%) that they were not replaced. The number of missing values concerning the work experience variables was quite high: *other academic work* 24%, *non-academic work* 23% and *own academic work* 9%. When missing values occurred in the work variables simultaneously with non-missing values in another work variable, they were replaced with zeroes. For example, if a student had a missing value in *non-academic work* and *other academic work* and a non-missing value in *own academic work*, the two missing values were replaced with zeroes to reflect the assumption that the student in question had only worked in his/her own academic field. After these analyses, quantitative analyses were conducted and are described in detail below. The analyses were carried out using SPSS (versions 21–22) and MPlus 7.11.

Qualitative analyses were done using content analysis (Elo & Kyngäs, 2007; Graneheim & Lundman, 2004). Content analysis may include either an inductive or a deductive approach, of which the present thesis used inductive content analysis. Inductive content analysis includes phases of coding, creating categories and abstraction (Elo & Kyngäs, 2007; Flick, 2002). Content analysis focuses on emphasising differences and similarities via codes and categories (Graneheim & Lundman, 2004). Next, an overview of the analyses used in the original studies (Studies I–IV) is provided.

Study I

In Study I, phenomenon-level and individual-level qualitative analysis was conducted to explore graduates' evaluations of their academic competences, confidence in their success in working life and the usefulness of their work experience. First, the aim was to capture the variation in the responses, and secondly, to explore what kinds of profiles can be identified based on the categories. In the first phase, graduates' evaluations of their academic competences, success in their working life and usefulness of their work experience were listed and coded. All of these themes were analysed separately. Categories were then created by qualitatively combining similar descriptions, and finally, the main categories were created and named at a certain level of abstraction. The analysis of the interviews was conducted by all the authors, although the first author had the main responsibility for the analytical processes. The first author independently analysed the interviews by reading them and identifying initial variations. The third author then analysed 15 randomly selected interviews (26%

of the 58 interviews). The first and third authors identified the same main categories, but detailed criteria for the categorisations were discussed together by all three authors and some categories were redefined. Following this step, the first author selected particular quotations from the interviews to represent each category, and the second author read through the selected quotations to validate the analysis. All unclear cases were discussed together. After closer analysis, most of the unclear descriptions could be classified into one of the existing categories.

In the second phase, the aim was to create graduate profiles using a person-oriented approach. This approach sees the individual as an organised whole and takes a holistic view of an individual's development (Bergman & Magnusson, 1997). Therefore, in the present study each graduate's descriptions and evaluations were analysed as a single unit. A total of eleven profiles were identified based on the combining of categories. In order to reduce the number of profiles, a few categories were combined after discussions among all the authors. For example, the categories of low and no confidence were combined. The profiles were formed based on graduates' evaluations of their academic competences and confidence in their success in working life because these were the elements that could be most clearly distinguished in the different profiles and because they were the elements from the USEM model used as a basis for creating the profiles (Knight & Yorke, 2002). After that, the final profiles were explored in relation to graduates' evaluations of the usefulness of their work experience. In addition, graduates' background information, such as their major, the nature of their work experience (e.g. academic work or non-academic work) and previous education, was analysed in greater detail to find explanations for the differences between the profiles.

Study II

Study II used both quantitative and qualitative analyses and explored the complex interrelations between academic competences and approaches to learning. First, the means and standard deviations of academic competences and approaches to learning were calculated at a group level. Then, the relations between academic competences and approaches to learning were analysed using Pearson's correlations (n = 1023). In addition, the interrelations between approaches to learning and academic competences were examined using linear regression analyses (forward method). Separate analyses were conducted for each academic competence, using academic competences as dependent variables and approaches to learning as independent variables. Regression analyses based on the idea of the 3P model, which treats approaches to learning as process factors and competences as product factor (see Biggs, 1987; Lizzio, Wilson, & Simons, 2002).

In Study II, 24 interviews with bachelor's degree graduates were added to the data on the master's degree graduates. Before that, the interviews with the bachelor's degree graduates were analysed in the same way as for the master's

degree graduates in Study I. The same variation was found and the data sets were combined. This is explained in more detail in the results section (p. 44). Thus, a total of 83 interviews were then analysed in order to explore, clarify and deepen our understanding of the interrelations between academic competences and approaches to learning. In this process, other themes related to the evaluations of academic competences that emerged from the interviews were also taken into account. Therefore, the focus included more than just aspects of learning and study processes. Content analysis was conducted and included phases of open coding, creating categories and abstraction (Elo & Kyngäs, 2007). The graduates' descriptions were broad, and thus the term 'theme' instead of 'category' was used. For example, the themes 'quality of study process' and 'satisfaction with the degree' are quite different from each other, but were both related to the descriptions of academic competences. In addition, especially descriptions of satisfaction with the degree were not always expressed directly, but the theme was still evident in the interviews. Content analysis deals with both obvious and latent contents, and categories are viewed as manifest content and themes as latent content (Graneheim & Lundman, 2004).

The analysis process proceeded so that the first author read through the interviews several times to find all descriptions related to the issues and coded them. Then, similar codes were grouped under the same sub-themes. Initial themes, such as quality of study process, transferability of academic competences and satisfaction with the degree, were formed and discussed. After that, the interviews were analysed in more detail in terms of the sub-themes. Finally, the sub-themes were discussed among all the authors and were grouped under the main themes. The level of agreement on the themes and sub-themes among the authors was quite high, almost 100%. Altogether, three broad themes having several sub-themes were identified. Finally, the main profiles, rich and limited evaluations of academic competences, which were first identified in Study I, were compared to the sub-themes in order to see how different evaluations of academic competences were related to approaches to learning and the other themes that had been identified.

Study III

Study III explored the relationship between work experience, approaches to learning and study pace and thesis grade. First, the relationships between the nature of work and gender as well as age were investigated using cross-tabulations and calculating the Chi-square statistics. Then, the relationships between the amount and nature of work and study success were analysed using ANOVAs. The effect sizes were calculated using eta squared values provided by SPSS. After that, structural equation modelling was used to analyse the relationships. Before fitting the SEMs, the data were screened for multicollinearity and any deviations from normality. The individual questionnaire items were not included in the

multicollinearity analyses because they were naturally assumed to correlate quite strongly. No signs of excessive multicollinearity were found, and no extreme skewness (scores > 3.0) or kurtosis (scores > 10.0) were noted. The models were created on the basis of previous research showing that the relationships between work experience, approaches to learning and study success have mainly been explored separately. Moreover, the overall idea was to simulate the 3P model of teaching and learning, which includes the stages of presage, process and product (Biggs, 1987, 2003). In the present study, students' work experience indicates the presage phase, while approaches to learning are indicators of process and study pace and theses grades are treated as indicators of the product.

Maximum likelihood estimation was used when fitting the models to the data, and a two-step approach to model fitting was applied (Kline, 2011). First, the measurement model involving the latent variables deep approach, surface approach and organised studying was fitted. A pattern matrix of the items describing approaches to learning is presented in Attachment 1. Then, the structural part of the model was added. The construction of the model is presented in more detail in the original Study III. Three models (one for each type of work) were constructed rather than including all independent variables in one model. This was done for the sake of interpretability: including all independent variables in one model and properly accounting for their interrelationships would have meant parameterising the resulting $3^3 = 27$ groups using 26 dummy variables. The mediation relationships were easier to present and interpret using three separate models. The standard errors of the model parameters were estimated using a bias-corrected bootstrap procedure, which has been shown to produce accurate results for indirect effects in mediation models (MacKinnon, Lockwood, & Williams, 2004). Using bootstrap-based procedures in mediation models is desirable because the sampling distribution of indirect effects cannot be assumed to be normal and because bootstrap-based methods have been shown to perform well in a simulation study (MacKinnon et al., 2004).

Study IV

Study IV was a longitudinal mixed-methods study that explored graduates' evaluations of the usefulness of their university education and their career success. In addition, it analysed whether graduates' evaluations of the academic competences they developed at university remained the same three years after graduation. This study was based on the results from Study I and Study II, in which graduates with rich and limited evaluations of their academic competences were identified and those graduates were followed into working life. Hereafter, the graduates who provided rich evaluations of their competences were labelled the *rich evaluation group*, while graduates who provided limited descriptions of their academic competences were labelled the *limited evaluation group*. A total of 57 graduates participated in the follow-up study. Of those 57 graduates, 29

(51%) belonged to the *rich evaluation group* and 28 (49%) to the *limited evaluation group*. At the graduation phase, a total of 64% of graduates were included in the *rich evaluation group* and 36% of graduates in the *limited evaluation group*. Thus, graduates with limited evaluations were slightly overrepresented in the follow-up study. Study IV explored changes in graduates' evaluations of their academic competences, which were investigated within and between the graduates with *rich* and *limited evaluation groups*. Changes within the group were explored using a paired samples t-test and between the groups using an independent samples t-test. In order to analyse changes in graduates' evaluations, the method of including change variables was used (Lindblom-Ylänne, Parpala, & Postareff, 2014). The change variable was created by subtracting the graduates' scores from the second measurement (three years after graduation) from their scores from the first measurement (at the time of graduation). The direction of change (increase, decrease, no change) was also examined. The differences in satisfaction with the degree and job satisfaction between the *rich* and *limited evaluation groups* were explored using a t-test and Chi-square test were used when analysing the differences in employment situation, nature of work and work history.

In Study IV, each open-ended question was analysed independently using different phases of content analysis. The process of analysis was simpler than in the previous studies (Study I and II) because the answers were shorter and the aim was clearer. First, the data were coded and similar codes were combined and sub-categories formed. Then, similar sub-categories were placed under the main categories (Table 1). This was done through discussions with the second author, and the final categories were created and labelled together with all the authors. The level of agreement on categories between the authors was quite high. After creating the categories, they were coded as dummy variables into the data in order to analyse differences in the categories between graduates in *rich* and *limited evaluation groups* using a Chi-square test. In addition, the frequency with which each category and sub-category was mentioned was calculated in order to see differences between the *rich* and *limited evaluation groups* more clearly.

Table 1. Example of creating categories

Codes	Sub-categories	Main category
More knowledge about working life, concrete examples of possible jobs, working life-oriented study counseling, mentoring	Working life orientation	Work-related practices
Practical examples of how theories can be used in practice, practical courses, applying theory to practice	Practice	
Networking, contacts to working life, business projects, collaboration with organisations, real-life projects	Networking	
Support for recognising personal strengths and utilising them, marketing of one's own competences	Recognising one's own competences	

In this thesis, quantitative and quantitative analyses were integrated in different ways in single sub-studies and at the general thesis level. Table 2 summarises the analyses used in this doctoral thesis.

Table 2. Summary of analyses of the doctoral thesis

Study	**Data collection**	**Participants (n)**	**Method**	**Mixed-method strategy by Teddlie & Tashakkori, 2009**
Study I	Interviews	58 master's degree graduates	Inductive content analysis Phenomenon level and individual level analysis	Qualitative study
Study II	Survey Interviews	1023 bachelor's degree and master's degree graduates 83 bachelor's degree and master's degree graduates	Pearson's correlations; Linear regression analyses (forward) Inductive content analysis Group level and individual level analyses	Multilevel mixed-method data analysis Parallel mixed-method data analysis
Study III	Survey	1023 bachelor's degree and master's degree graduates	Cross-tabulation and Chi-square test, ANOVA, SEM	Quantitative study
Study IV	Survey Open-ended questions	57 master's degree graduates	Independent samples t-test Paired samples t-test Chi-square test Inductive content analysis	Parallel mixed-method analysis Conversion mixed-data analysis

6 Results

This chapter presents the results of the doctoral thesis study. First, it presents the results of the graduates' evaluations of their employability (Study I). Second, it focuses on the complex interrelations between academic competences and approaches to learning (Study II). Third, it presents the results of the relations between nature and amount of work experience, approaches to learning and study success (Study III). Fourth, the results of the follow-up study (Study IV) are discussed.

6.1 Graduates' evaluations of their employability at the time of their graduation (Study I)

The results revealed variation in graduates' evaluations of how they had developed their academic competences at university, confidence in their success in future working life and how useful graduates evaluate their work experience in relation to their studies. Moreover, individual level analysis showed that different profiles could be identified from the data based on the variation in the evaluations of their academic competences and confidence in their success in future working life. Next, the variation in each theme is presented in more detail, after which the profiles are presented.

6.1.1 Evaluations of academic competences

The graduates provided qualitatively different evaluations of how their competences had developed during their university studies. The first category consisted of evaluations with detailed analyses of their competences, including both demanding academic competences and practical competences. Competences such as the acquisition of knowledge, application of knowledge and critical-thinking were mentioned most often. In addition, graduates mentioned the development of one's own thinking, the ability to analyse different options and being able to think more broadly in the evaluations. They also mentioned practical competences such as collaboration and communication, including oral-presentation and writing skills. The following extract is typical of such descriptions:

> Well, I think that the studies have developed my competences quite well – for example, my own thinking and my ability to see different perspectives, analyse and bring something new, and also my ability to think critically. (Agricultural sciences)

The second category consisted of limited descriptions and evaluations of practical academic competences. These evaluations revealed that graduates were able to describe their competences narrowly. Only a few competences, usually practical ones, such as language and information technology skills, were mentioned. Thus, compared to the previous category, these evaluations focused more on practical skills than on higher-level cognitive competences as well as less on the number of competences, as in the following extract:

> Well, it is quite limited, or at least it is difficult for me to analyse. Probably basic language skills and IT skills. My studies were not practical in a way that I could somehow directly say that these were the working-life competences that were taught. (Humanities)

Moreover, some of the graduates mentioned rather vaguely that they had acquired certain competences, but they were then unable to provide concrete examples of them:

> I believe that if I get a job in my own academic field, I will have the competences to work, or at least I will have a degree. (Humanities)

The third category consisted of evaluations that reflected difficulties in describing any academic competences acquired during studies. Some evaluations even revealed that students had developed no generic competences at university:

> Well, I was thinking about this before and, unfortunately I have to say that nothing [no academic competences have been developed]. (Humanities)

Some graduates mentioned that university studies were extremely theoretical, thus, they evaluated that they had not developed any useful competences for working life. Moreover, some expressed difficulties in analysing their competences and skills:

> At this point, I probably cannot analyse what I have learned when I was doing my master's thesis, what I learned from doing it. (Humanities)

6.1.2 Confidence in success in working life

The results revealed that most of the graduates had a high level of confidence in their future success in working life, although there was variation from high confidence to low or no confidence. Some of the graduates expressed a high level of confidence even if competition in the labour market was considered to be intense. Moreover, the evaluations revealed quite realistic views of working life. Evaluations in this category also emphasised the need for self-confidence and flexibility in order to manage the demands of work, as the following extract shows:

> Yes, of course you need to have such capabilities that you would dare to say that you know your own limits if you are not able to do something ... of course, the economic situation at the moment worries me, and in fact layoffs are going to begin in our workplace ... I do feel that I certainly can find some kind of job, and if necessary I can change fields. … So, self-assurance and self-confidence are really important to have. (Humanities)

Some of the evaluations also revealed low confidence concerning success in working life, such as the following comments:

> Well, on the one hand, I feel that I know some things. But then, somehow, if I now look at my qualifications that I have from the schools, I think that I don't have any proper knowledge or any kind of profile that someone out there is looking for. So I am a bit worried about that. Especially now when I have to search for a job. (Humanities)

> Well, sometimes I have and sometimes I don't have [confidence]. It depends on the day (laughs). Sometimes I am really excited and so on … For a long time, I have been a bit terrified. And even when I had the degree done, I intentionally prolonged it because there was nothing [no work]. (Humanities)

Some graduates expressed a lack of confidence in the evaluations because they had no work experience in their own academic field:

> Maybe I have low self-esteem or self-confidence in my own abilities at the moment... I am afraid that I sound too pessimistic in terms of working life. ... Perhaps it's just because I don't have a job in my own field and I feel that it is so hard to get… But time will tell. Maybe then,

> when you get a job, you realise that you can do this, that you have the competences to do it, but before that... (Humanities)

6.1.3 Usefulness of work experience for studies

There was also variation in how graduates evaluated the usefulness of the work experience acquired during their studies, and three categories emerged: high-level cognitive benefits, practical benefits and no perceived benefits. The first category consisted of descriptions of work experience that helped students link theory to practice, develop their ability to apply knowledge or develop their own thinking. One graduate evaluated the usefulness of his/her work experience in the following way:

> Well, of course you can see how the theory can be applied in practice, and when you do practical work, then you maybe remember these theories. And then, when you learn a new theory, you are able to think about what kind of situations you can apply it to, so in that sense, of course it supports. (Social sciences)

Some evaluations in this category showed that working motivated students to study, and it helped them to concentrate on what was essential. Moreover, the ability to see one's own strengths and weaknesses through work experience was mentioned, as in the case below:

> Well, yes, work motivated me quite a lot to study because when you do translation work for pay you take it more seriously… and you want to give the best image of your own professional skills, so of course it then motivates you to develop these skills. (Humanities)

In addition, some evaluations showed that working provided students with a different perspective on their studies and made them more meaningful:

> You can direct your studies because you can see their relevance to working life … and what kind of things can be useful. It makes studying more meaningful. (Humanities)

The second category consisted of descriptions of the practical benefits of work experience. Most of the graduates' evaluations belonged in this category. The descriptions showed, for example, that working helped students to schedule their studies and use their time more effectively. Moreover, acquired time-management

and social skills were mentioned. A few of the evaluations revealed that work had benefitted studies by providing data for coursework or a master's thesis topic:

> It [work] gave me data that I could use in my assignments, so I can say that there have been some practical benefits too. (Social sciences)

The third category consisted of evaluations suggesting that work experience had no benefits for their studies. Some evaluations mentioned work and studies as being very different in nature, and therefore no connection could be made between them:

> It's a different kind of job that is not related in any way to university studies. I have gained a lot of experience, but it does not support my studies because it's so different (Humanities)

Table 3 summarises the variation in the themes.

Table 3. Variation in graduates' evaluations of their academic competences, confidence in their success in working life and the usefulness of their work experience

1. Academic competences
1.1 Detailed analyses of demanding academic competences:
critical thinking, academic writing, development of one's own thinking,
communication skills
1.2 Limited descriptions of practical academic competences
Practical skills mentioned (e.g. language skills, IT skills)
Only a few competences mentioned or no concrete examples provided
1.3 Difficulties describing academic competences
No competences mentioned
2. Confidence in success in working life
2.1 High confidence in success in working life
2.2 Low confidence in success in working life
2.3 No confidence in success in working life
3. Usefulness of work experience for studies
3.1 High-level cognitive benefits (e.g. application of knowledge, development of one's own thinking)
3.2 Practical benefits (e.g. time management, social skills, enhanced motivation)
3.3 No benefits mentioned

6.1.4 Variation in graduates' evaluations at the individual level: graduate profiles

After capturing the variation in the specific themes at the phenomenon level, the kinds of combinations these themes formed at the individual level were explored. Four profiles were formulated based on graduates' evaluations of their academic competences and confidence in their success in working life: *rich descriptions/high confidence, rich descriptions/low confidence, limited descriptions/high confidence* and *limited descriptions/low confidence*. We then examined the profiles in relation to graduates' evaluations of the usefulness of their work experience to their studies, and the results showed that the evaluations provided by the graduates assigned to the four profiles differed. The process of creating the profiles is illustrated in Figure 3. Graduates in all four profiles had work experience from their own academic field: 81% of graduates who provided rich descriptions and evaluations and 77% of graduates who provided limited descriptions and evaluations had work experience in their own academic field.

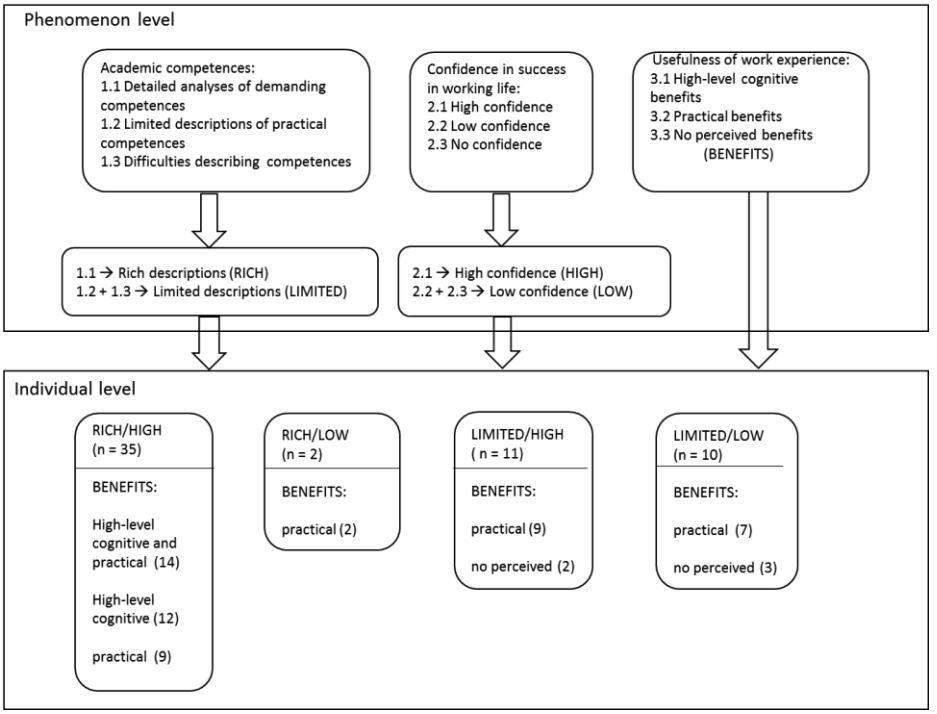

Figure 3. The process of creating the profiles: phenomenon and individual level analyses.

The first profile, *rich descriptions/high confidence*, represented graduates who provided rich descriptions and evaluations of their academic competences and expressed a high level of confidence in their future success in working life. These graduates were able to provide deep analyses of demanding competences and also mentioned a number of other competences. They also perceived their work experience as being beneficial to their studies. However, the graduates differed in the kinds of benefits they described. Almost half perceived both high-level cognitive and practical benefits. There were also graduates who reported either high level cognitive or practical benefits. The second profile, *rich descriptions/low confidence*, consisted of graduates who provided rich descriptions of their academic competences but had low confidence in their future success in working life. They reported receiving practical benefits from work. Only two graduates belonged to this profile.

The third profile, *limited descriptions/high confidence*, consisted of graduates who provided limited descriptions of their practical competences and expressed a high level of confidence in their future success in working life. Most of these graduates described the practical benefits of their work experience. However, two graduates in this profile were unable to describe any benefits gained from their work experience. In the fourth profile, *limited descriptions/low confidence*, graduates also varied regarding their evaluations of the usefulness of work to their studies. Some graduates reported the practical benefits of work experience, while others were unable to describe any benefits gained from their work experience.

Differences in current work situation between the profiles

After identifying the profiles, it was investigated whether graduates' work situations differed at the time of their graduation (Table 4). The results revealed that most of the graduates in the *rich/high* profile had a job at the time of their graduation. In addition, most had a job that corresponded to their degree. A total of four out of the 31 graduates in this profile were looking for a job that corresponded to their degree. Only four graduates were unemployed and seeking a job. The two graduates representing the *rich/low* profile differed from each other: one had a job related to his academic degree, while the other was unemployed. In the *limited/high* profile, nine graduates had a job at the time of their graduation, but three were looking for another job more related to their academic degree and two graduates were unemployed. The *limited/low* profile featured greater variation in the graduates' current working situation than did the other profiles: seven graduates had a job, but two of the seven were working at a job unrelated to their academic studies, two of them were unemployed and one had chosen to pursue another master's degree.

Table 4. Work situation of those in the different profiles at the time of graduation

	Rich/high n=35	Rich/low n=2	Limited/high n=11	Limited/low n=9
Had a job at time of graduation	31	1	9	7
Unemployed at time of graduation	4	1	2	2

In Study III, 24 bachelor's degree graduates' interviews were analysed in the same way to establish whether the same profiles can be identified among graduates with a bachelor's degree as among graduates with a master's degree. As a result, we noted the same kind of variation in the evaluations of their academic competences as well as confidence in their future success in working life. Individual level analysis showed that three of the four profiles emerged from the data on bachelor's degree graduates: *rich descriptions/high confidence, limited descriptions/high confidence* and *limited descriptions/low confidence*. Only the *rich descriptions/low confidence* profile was not found among those graduating with a bachelor's degree. Just as for those graduating with a master's degree, most bachelor's degree graduates belonged to the rich descriptions of competences/high confidence in success in working life profile. The distribution of the bachelor's degree graduates and master's degree graduates into the four profiles is presented in Table 5.

Table 5. Distribution of bachelor's and master's degree graduates into the four profiles

Profile	Rich/High	Rich/Low	Limited/High	Limited/Low
Bachelor's degree (N = 24)	15	-	8	1
Master's degree (N = 59)	35	2	12	10
Total (83)	50	2	20	11

6.2 The complex interrelations between academic competences and approaches to learning (Study II)

Study III explored the complex interrelations between academic competences and approaches to learning using both quantitative and qualitative analysis. In general, the quantitative results showed that graduates scored quite highly on all academic competences (Table 6). The highest scores were in the competences seeing different perspectives and critical thinking and the lowest scores were in the

competences collaboration and communication and developing new ideas. In terms of their approaches to learning, graduates scored highest in the deep approach to learning and organised studying and lowest in the surface approach.

Table 6. Means and standard deviations of academic competences and approaches to learning

Academic competences and approaches to learning N = 1023	Mean	SD
Academic competences		
1. Applying knowledge	3.71	.96
2. Collaboration and communication	3.43	1.08
3. Analysing and structuring information	4.28	.73
4. Seeing different perspectives	4.35	.75
5. Critical thinking	4.35	.76
6. Making arguments and looking for solutions	4.25	.75
7. Developing new ideas	3.61	.96
Approaches to learning		
8. Deep approach	3.81	.68
9. Surface approach	2.21	.76
10. Organised studying	3.56	.76

The results also showed that all academic competences correlated positively and statistically significantly with a deep approach to learning and organised studying and negatively with a surface approach to learning (Table 7).

Table 7. The significant relationships between academic competences and approaches to learning

Academic competences and approaches to learning	1	2	3	4	5	6	7	8	9
1. Applying knowledge									
2. Collaboration and communication skills	0.35								
3. Analysing and structuring information	0.35	0.30							
4. Seeing different perspectives	0.33	0.29	0.63						
5. Critical thinking	0.29	0.24	0.58	0.72					
6. Making arguments and looking for solutions	0.30	0.21	0.56	0.57	0.59				
7. Developing new ideas	0.39	0.33	0.39	0.42	0.45	0.51			
8. Deep approach	0.27	0.10	0.33	0.34	0.36	0.35	0.35		
9. Organised studying	0.20	0.15	0.21	0.15	0.17	0.18	0.15	0.31	
10. Surface approach	-0.28	-0.10	-0.24	-0.18	-0.15	-0.22	-0.23	-0.31	-0.22

Regression analyses were conducted to explore which approach to learning had the strongest relationship with each academic competence. As can be seen in Table 8, the deep approach to learning was significantly related to all of the academic competences, except for *collaboration and communication competences*. The standardised regression coefficients β showed that the deep approach to learning had the strongest relation to all of the competences than did the other approaches. The surface approach had a negative significant relation to all other competences, except for *critical thinking*, to which it was not related. Organised studying was positively associated with *applying knowledge*, *collaboration and communication*, *analysing and structuring information*, *critical thinking* and *making arguments and looking for solutions*. All three approaches to learning had significant relation to academic competences *applying knowledge*, *analysing and structuring information* and *making arguments and looking for solutions*. Table 8 shows the results of the regression analyses.

Table. 8. Summary of the regression analyses on the relations between academic competences and approaches to learning

	Applying knowledge [a] β	**Collaboration and communication** β	**Analysing and structuring information** β	**Seeing different perspectives** β	**Critical thinking** β	**Making arguments and looking for solutions** β	**Developing new ideas** β
Deep approach	.17**	-	.25**	.32**	.34**	.30**	.31**
Surface approach	.11**	-.07*	-.15**	-.07*	-	-.11*	-.13**
Organised studying	.20*	.13**	.10*	-	.07*	.07*	-

*p < .05, ** P< 0.001

[a] R = 0.348, adjusted R^2 = 0.12, F(3, 986) =45.16, p = <.001

[b] R = 0.163, adjusted R^2 = 0.24, F(2, 987) =13.40, p = <.001

[c] R = 0.369, adjusted R^2 = 0.13, F(3, 985) =51.67, p = <.001

[d] R = 0.348, adjusted R^2 = 0.12, F(2, 987) =68.12, p = <.001

[e] R = 0.367, adjusted R^2 = 0.13, F(2, 985) =76.66, p = <.001

[f] R = 0.377, adjusted R^2 = 0.14, F(3, 984) =54.45, p = <.001

[g] R = 0.377, adjusted R^2 = 0.14, F(2, 977) =81.14, p=

In the qualitative part, the relationship between evaluations of academic competences and approaches to learning was explored in more detail by analysing the graduates' profiles. In Study I, graduates with rich descriptions and limited descriptions of academic competences were identified (see also p. 43). The qualitative results indicated three broad themes related to evaluations of academic competences: (1) quality of the study process, which was further divided into study process and reason for studying; (2) transferability of academic competences; and (3) satisfaction with the degree. The themes and sub-themes in relation to the *rich* and *limited evaluation groups* are presented in Table 9. Next, these themes and extracts from the data are presented.

Table 9. Themes and sub-themes in relation to the *rich* and *limited evaluation groups*

Themes	**Sub-themes related to the *rich evaluation group* (n = 52)**	**Sub-themes related to the *limited evaluation group* (n = 31)**
Quality of learning and study process	Deep processing Lack of surface processing Effort in studying Individual, professional and social reasons	Deep processing Surface processing Lack of effort in studying Individual, professional and social reasons
Transferability of academic competences	Transferable *high-level* skills	Transferable *practical* skills
Satisfaction with the degree	High satisfaction	High satisfaction Low satisfaction

The first main theme, *quality of study process*, was divided into 'study process' and 'reason for studying'. Study process included three sub-themes: deep processing, surface processing and effort in studying. Descriptions of *deep processing* of the study material were given by graduates in both the *rich* and *limited evaluation groups*. These descriptions revealed that the graduates aimed to understand the subject matter and that they actively processed information by, for example, relating new knowledge to previous knowledge and seeking relations between different subject matter. In addition, the descriptions revealed that acquiring a deep understanding requires different competences, such as analysing and structuring information, as described in the following quote:

> I like to write essays even though it takes more time. But it is rewarding because you can remember those things afterwards, as you have analysed and structured information and modified the text many times.

The second sub-theme, *surface processing*, featured descriptions of rote learning. In addition, some descriptions revealed that graduates had not integrated content into a coherent whole. All of the descriptions reflecting this category were mentioned by the graduates in the *limited evaluation group*. A number of descriptions also revealed that graduates had aimed to understand the subject matter, but their study processes did not support their understanding. In the following extract, a graduate describes his/her studying:

> My studying has been cramming for the exams. … I read the books in a week and then I went to the exam, and two days later I had forgotten almost everything. But I understand that it also depends a lot on yourself.

The third sub-theme, *effort in studying*, consisted of descriptions of putting effort into studying and learning, especially in terms of developing academic competences. This was the most distinctive aspect of studying that separated graduates in the *rich* and *limited evaluation groups*. Graduates in the *rich evaluation group* emphasised their own activity in learning competences, whereas graduates in the *limited evaluation group* did not. This sub-theme also included statements to the effect that graduates had chosen courses that involved group work or making presentations because they viewed these as useful for working life. There were also descriptions by graduates of having written essays even when they considered them difficult and time-consuming compared to book exams, because they wanted to better understand the content and learn academic writing skills. Thus, they were also willing to take on new challenges. In the following extract, a graduate describes deliberately developing academic competences:

> I've chosen presentation courses and writing courses, and I think that they have been very useful. I have learned writing skills and presentation skills from these courses.

Some graduates in the *limited evaluation group* stated that they had chosen the easiest way to study, even if they realised that it was not the best way to study and absorb the subject matter. One graduate described his/her study effort as follows:

> Book exams were the easiest way to study. Writing an essay would have required a deep understanding and writing skills.

Graduates in both the *rich* and *limited evaluation groups* described their studies as being theoretical and said that they would have liked more practice in their studies. However, a qualitative difference was noted between the groups, one which also relates to effort in studying. Graduates in the *rich evaluation group*

most often stated that they had themselves tried to think of how the theoretical knowledge could be used in practice. They understood that their studies were theoretical in nature, and therefore, they had actively tried to search for practical applications of the theories, for example in the work they had done during their studies.

> We studied the theory, but then the application depends on the students themselves. And when you actually find employment, then you have to think about these theories.

In the next extract, a graduate from the *limited evaluation group* describes the application of theoretical knowledge to working life:

> There is no time to think about what to do in practice with the subject matter that I've learned, so that's why I feel really frustrated that I have studied for many years and I cannot concretely use it in my work after the studies.

The second part of the *quality of study process* theme consisted of the reason for studying. It included three sub-themes: individual, professional and social reasons. The results revealed that there were no differences between graduates in the *rich* and *limited evaluation groups*. Thus, graduates in both groups provided descriptions that fit each sub-theme, and one graduate might have mentioned several sub-themes. The first sub-theme, *individual reasons*, included descriptions of interest and developing one's own thinking. In addition, ambition, a passion to learn and liking new challenges were mentioned as reasons motivating them in their studies. Individual reasons were most often mentioned in both groups. The following extract is an example of an individual reason:

> Well, feeling that you can develop yourself and that every day you are able to do something new and learn new things.

The second sub-theme, *professional reasons*, consisted of descriptions related to a new profession or professional growth. For example, entering a new profession or otherwise gaining employment and acquiring new skills were mentioned. Moreover, graduates in both the *rich* and *limited evaluation groups* mentioned that they wanted to apply the knowledge they had acquired later in working life. In addition, the descriptions revealed that the goal of some graduates was to earn a university degree, status or good grades, which are more external factors, but they were usually related to employment. For example, a degree might be required for a specific job. The next example illustrates a professional reason:

> …applying knowledge to practice. I have made all my choices so that they would be useful for me in working life, too.

The third sub-theme, *social reasons*, included descriptions of the social aspects of studying and learning. No differences in this sub-theme were found between graduates in the *rich* and *limited evaluation groups*. In both groups, graduates mentioned that belonging to academia or a research community, peer support and organisational activities had been important during their studies. Some descriptions revealed that learning together and from others had been important:

> Social community. My friends were also from the university because I had moved from elsewhere. We had a lot of discussions during lunches and we often talked about things to be learned and related them to our work experience.

The second theme, *Transferability of academic competences*, was related to learning and the study process and differentiated graduates in the *rich* and *limited evaluation groups*. Two sub-themes, transferable high-level skills and transferable practical skills, were identified. The sub-theme *transferable high-level skills* included descriptions of high-level cognitive skills, such as critical thinking, analysing information and applying knowledge, as well as practical skills that can be learned at university and then used in working life. Descriptions of transferable high-level skills were mostly mentioned by graduates in the *rich evaluation group*. In the following extract, a classroom teacher graduate describes how theories can be applied in practice, representing the sub-theme of transferable high-level skills:

> Some of the students wondered why we read theory. … I think that when you have read the theory and when a problem situation comes up in the classroom, you are able to solve the problem. … So I think that theory is something that helps you to discuss issues and look for more information.

The sub-theme *transferable practical skills* included descriptions of practical competences that can be used at work. Graduates in the *limited evaluation group* most often mentioned transferable practical skills. The following extract reveals that the competences that can be used in working life should be quite concrete:

> Field courses … there I have done something concrete and I have learned a variety of things which will be useful in working life. But only one course at university relates to the work that I do at the moment.

In addition, some descriptions revealed that the competences needed in working life were felt to be very different from those developed during studies. The next extract represents this sub-theme quite well:

> It [the degree] provides competence for doctoral studies, nothing else. It's not clear how mathematics can be used in practice.

The third theme, *satisfaction with the degree*, emerged from the data when graduates described whether they had developed enough competences for working life. Two sub-themes were discerned: high satisfaction and low satisfaction. The results showed that most of the graduates from the *rich evaluation group* were satisfied with their degree. Only one graduate in this group said that he/she was only partly satisfied. High satisfaction was expressed in descriptions by the graduates that they had gained all of the competences needed in working life, or at least the ability to learn in working life. Some also stated that theoretical understanding is important and that they had the most up-to-date knowledge in their field, which is valuable at work. Some expressed appreciation for their education and the academic degree and noted that a degree provides opportunities in working life. A graduate in the *rich evaluation group* describes it as follows:

> I gained enough knowledge and skills from university that I am able to develop myself and become an expert at work.

Graduates in the *limited evaluation group* usually reported that they had not developed many competences for working life, and thus, they were not satisfied with their degree. However, there were also graduates in this group who were satisfied with their degree because it was seen to offer them opportunities to apply for academic jobs. The *limited evaluation group* also included graduates who were uncertain about their level of satisfaction. In the following quotes, graduates from the *limited evaluation group* describe their satisfaction with the degree:

> I am not sure whether it [university education] has given me good working skills. Because what the university teaches I feel is so abstract that to apply it to work is difficult.

> So I am not completely satisfied with my degree, I've never been, and I'm certainly not going to be. I would need more substance knowledge.

6.3 The relationship between work experience, approaches to learning and study success (Study III)

Study III explored how different kinds of work experience, approaches to learning and study success were related. Data from 1023 students' survey answers showed that almost all of the participants (91%) had worked during their final year of studies; most of them (66%) had worked less than 20 hours per week, but 44% had worked more than 20 hours per week. The nature of the work differed: 30% had *own academic* work experience and 28% *non-academic* work experience. In addition, almost 33% had both own academic and non-academic work experience. Only 9% of students had *no work* experience.

First, the relationship between working hours and study pace was explored using a variable representing overall amount of work by an analysis of variance (ANOVA). The results showed a relationship between amount of work and study pace ($F(3, 952) = 11.19$, $p = < .001$, $\eta^2 = .03$). Students who had worked less than 20 hours received more study credits per year ($M = 27.1$, $SD = 7.1$) than students who had worked more than 20 hours per week ($M = 24.3$, $SD = 6.9$). Students without work experience received more study credits ($M = 26.5$, $SD = 8.2$) than students who had worked more than 20 hours per week ($M = 24.3$, $SD = 6.9$).

Then, the relationship between the nature of the work experience and study pace earned study credits was explored ($F(3, 938) = 3.91$, $p = .009$, $\eta^2 = .01$). Students who had diverse work experience, including both *own academic* and *non-academic* work experience, received more credits ($M = 26.8$, $SD = 7.8$) than students who only had *own academic* work experience ($M = 25.1$, $SD = 7.1$) or *no work* experience ($M = 24.5$, $SD = 8.1$). The results showed no statistically significant relations between thesis grade and the nature of the work, nor between the thesis grade and the amount of work.

Structural equation modelling (SEM) was used to explore the multivariate relationships between work experience, approaches to learning and study success (study pace and thesis grade). The final measurement model fit was satisfactory (χ^2 (49, $N = 1018$) = 149.61, $p < .001$, TLI = .95, CFI = .96, RMSEA = .045, SRMR = 0.040). SEM was conducted separately for all three types of work in order to present and interpret them more clearly. The results showed that *own academic* work had a direct effect on students' study pace. In more detail, a negative effect was found when students worked more than 20 hours per week compared to students who did not work at all in their own academic field. Moreover, a deep approach to learning and organised studying served as significant predictors of study pace. Organised studying was positively related to study pace, while a deep approach to learning was negatively related to study pace. However, the approaches to learning did not function as mediating variables between work experience and study success in this model. In addition, *own*

academic work and approaches to learning were not related to thesis grade. The model is shown in Figure 4.

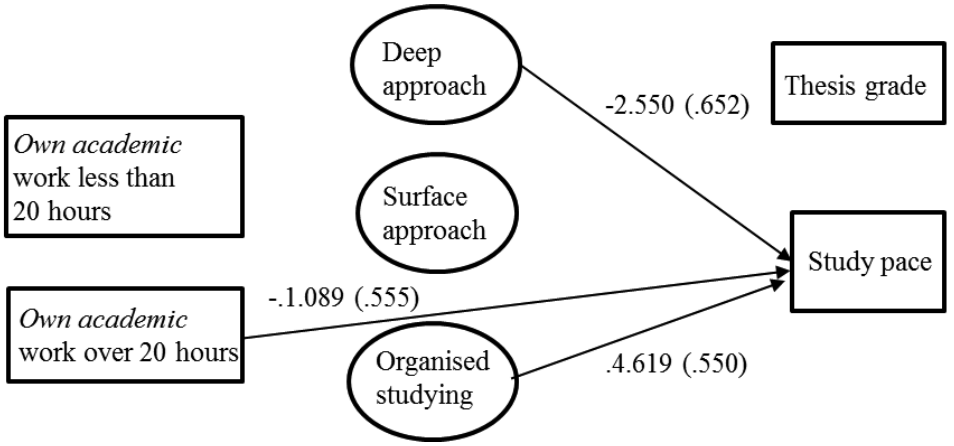

Figure 4. Unstandardised regression coefficients and standard errors for the effects of *own academic* work, approaches to learning and study success.

Secondly, the results showed that *other academic* work had no direct effect on study pace or thesis grade. However, *other academic* work was positively related to a deep approach to learning in both cases: working less than 20 hours or working more than 20 hours per week. Moreover, *other academic* work was negatively related to study pace through a deep approach to learning. The indirect effect of work experience and the effect of a deep approach to learning on study pace were negative, although work experience itself was positively related to a deep approach to learning. Moreover, organised studying was positively related to study pace, but no relationships were found between approaches to learning and thesis grade. The model is shown in Figure 5.

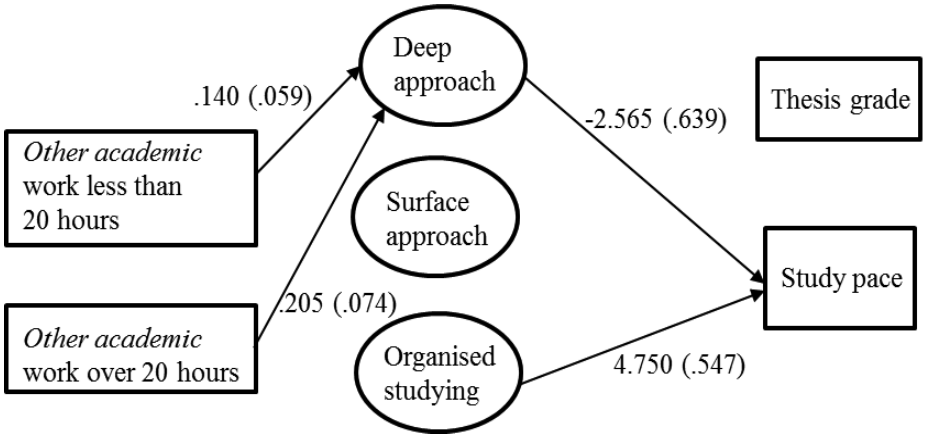

Figure 5. Unstandardised regression coefficients and standard errors for the effects of *other academic* work, approaches to learning and study success.

Finally, the model concerning *non-academic* work showed that *non-academic* work had both direct and indirect effects on study pace and thesis grade. Working less than 20 hours per week had a direct positive relation to study pace, whereas working more than 20 hours per week had a direct negative relation to thesis grade. In addition, working less than 20 hours per week in *non-academic* work was positively related to a surface approach to learning and negatively related to organised studying, while working more than 20 hours per week was negatively related to organised studying. Moreover, the results showed that organised studying acted as a mediating variable in this model. In other words, *non-academic* work had an indirect relation to study pace through organised studying in both cases, working less than 20 hours and more than 20 hours per week, in contrast to students with no *non-academic* work experience. In addition, a deep approach to learning and organised studying served as statistically significant predictors of study pace. Approaches to learning were not, however, statistically significantly related to thesis grade. The model is shown in Figure 6.

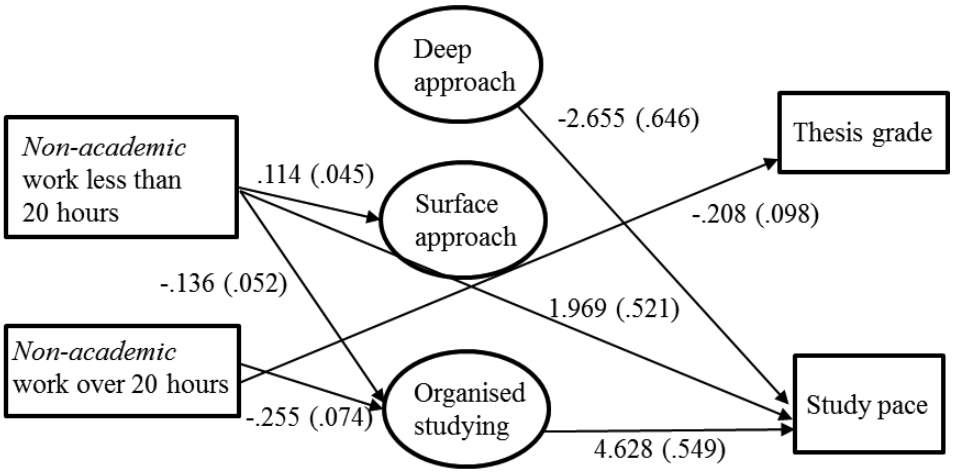

Figure 6. Unstandardised regression coefficients and standard errors for the effects of *non-academic* work, approaches to learning and study success.

6.4 Graduates' perceptions of the usefulness of their university education three years after graduation (Study IV)

Study IV explored the usefulness of a university education by exploring graduates' evaluations of the academic competences that they had developed at university and their satisfaction with the degree from a career standpoint three years after graduation. In addition, possible changes in evaluations of academic competences were analysed. Study IV was a follow-up study in which *rich* and *limited evaluation groups* were followed from graduation to the working life. Changes were explored within and between the *rich* and *limited evaluation groups* using both quantitative and qualitative analyses. First, changes within the rich and limited evaluation groups were explored using quantitative data. The results from the paired samples t-tests showed that within the *rich evaluation group*, there were statistically significant changes in two of the competences: collaboration and communication ($t = 3.20$ $p <. 05$, Cohen's $d = 0.60$) and developing new ideas ($t = 2.37$, $p <.05$, Cohen's $d = 0.44$). Graduates scored lower on those items three years after graduation compared to the evaluations at the time of their graduation. For graduates in the *limited evaluation group*, there was also a statistically significant difference with respect to a change in collaboration and communication competences ($t = 2.20$, $p <.05$, Cohen's $d = 0.42$), and they also scored lower on this item after graduation.

Then, the differences in changes of evaluations of academic competences between the groups were explored. The results from the independent samples t-

test showed that the groups did not statistically significantly differ in terms of changes in the evaluations of their academic competences. The results, however, showed that the direction of change was different between the groups in five of seven academic competences. Among those in the *limited evaluation group*, the change was in most cases positive, indicating that scores from the second measurement were higher for them than scores at the first measurement compared to graduates in the *rich evaluation group*, whose scores were in most of the cases lower at the second measurement point than at the first measurement point. Overall, the quantitative results showed that the highest scores in both groups and at both measurement points were *analysing and structuring of information*, *seeing different perspectives* and *critical thinking*. The lowest scores were for *collaboration and communication* and *developing new ideas* at both measurement points. The means, standard deviations and change variables for the *rich* and *limited evaluation groups* are presented in Table 10.

Table 10. Evaluations of academic competences at two measurement points and changes in those evaluations

Academic competences	***Rich evaluation group***				**Change**	**p-value**	***Limited evaluation group***				**Change**	**p-value**
	1st meas.		2nd meas.				1st meas.		2nd meas.			
	Mean	SD	Mean	SD	Rich		Mean	SD	Mean	SD	Limited	
1. Applying knowledge	3.76	1.19	3.38	.98	-.38	>.05	3.61	1.23	3.79	1.03	.18	>.05
2. Collaboration and communication	3.48	.99	2.97	.94	-.51*	.003	3.54	1.11	3.00	1.25	-.54*	.037
3. Analysing and structuring information	4.48	.51	4.34	.90	-.14	>.05	4.50	.58	4.64	.49	.14	>.05
4.Seeing different perspectives												
5. Critical thinking	4.45	.57	4.34	.94	-.11	>.05	4.43	.69	4.57	.57	.14	>.05
6. Making arguments and looking for solutions	4.34	.72	4.48	.87	.14	>.05	4.57	.69	4.57	.74	0	>.05
7. Developing new ideas	4.31	.66	3.93	1.00	-.38	>.05	4.36	.87	4.39	.79	.03	>.05
	3.66	1.01	3.21	.94	-.45*	.025	3.68	.98	3.64	1.10	-.04	>.05

Note: * Statistically significant changes within the group.

Graduates' qualitative descriptions of the most important competences and skills that they had developed at university and needed in working life were explored. Four main categories emerged: 1) information processing, 2) collaboration and communication skills, 3) individual factors and 4) professional skills. Chi-square tests showed that graduates in the *rich* and *limited evaluation groups* did not differ in their answers regarding developed and important skills (Table 11). More specifically, graduates in both groups most often mentioned competences related to information processing. These competences included, for example, searching for information, critical thinking and seeing different perspectives. In addition, graduates in both groups considered the skills of analysing information and substance knowledge developed at university to be important in working life. Furthermore, graduates mentioned that collaboration and communication had been important competences in their working life, especially the presentation of knowledge was often mentioned. Moreover, graduates mentioned individual factors, such as learning skills, time-management skills and self-beliefs. Self-beliefs included taking initiative, persistence and self-efficacy. In addition, graduates in both groups mentioned professional skills, such as research and pedagogical skills, as being important.

Table 11. Main categories, sub-categories and frequencies of the descriptions regarding developed and important competences

Main and sub-categories	Rich evaluation group	Limited evaluation group
Information processing (111)		
Searching information (26)	13	13
Critical thinking (24)	12	12
Seeing different perspectives (21)	10	11
Analysing information (20)	11	9
Substance knowledge (20)	12	8
Collaboration and communication skills (21)	6	12
Presenting knowledge (18)		
Collaboration skills (3)	1	2
Individual factors (23)		
Self-beliefs (11)	6	5
Learning skills (6)	5	1
Time management and organising skills (6)	4	2
Professional skills (10)		
Pedagogical and research skills (10)	5	5

Satisfaction with degree in terms of career

Graduates' evaluations of their level of satisfaction with the degree with respect to their career was measured three years after graduation. The results revealed that graduates in the *rich evaluation group* felt that their university education corresponded more to their current job ($M = 4.70$, $SD = .66$) compared to graduates in the *limited evaluation group* ($M = 3.46$, $SD = 1.53$), $t = 3.96$, $p < .001$, Cohen's $d = 1.04$). However, there was no statistically significant difference in terms of the level of satisfaction with the degree between graduates in the *rich* and *limited evaluation groups*, although graduates in the rich group scored higher on the item (Table 12). The results also showed that 28% of graduates ($n = 16$) would not choose the same study field if they were to begin their studies now. There was, however, no statistically significant difference between graduates in the *rich* ($n = 8$) and *limited* ($n = 8$) *evaluation groups*.

Table 12. Items of satisfaction with degree from a working life standpoint, means and standard deviations for graduates in the *rich* and *limited evaluation groups*

Items Scale 1-5	***Rich evaluation group*** (n = 29) Mean	SD	***Limited evaluation group*** (n = 28) Mean	SD	**t**	**p**
The level of my current job corresponds to my academic education.	4.70	.66	3.46	1.53	3.96	.000*
Satisfaction with the degree in terms of career.	4.03	1.11	3.71	1.24	1.02	p >.05
Choosing the same study field	Yes 21	No 8	Yes 20	No 8		

Note: * p < .001.

Qualitatively graduates' level of satisfaction with their degree in terms of working life was analysed by asking them what they would have needed more of at the university from a working life standpoint. Four main categories emerged: 1) work-related practices, 2) generic skills, 3) specific knowledge and 4) study counselling. The results showed no statistically significant differences in the answers between graduates in the *rich* and *limited evaluation groups* (Table 13). Graduates mentioned most often the need for more work-related practices, such as more knowledge about working life and possible jobs as well as more working life-oriented study counselling. They would also like to have had more practice in their studies and networking, meaning more contacts with companies and business projects as well as more support in recognising one's own competences. Social and presentation skills as well as critical thinking were the generic skills that graduates would have needed more practice with during their studies. General study counselling and specific knowledge, which was related to business knowledge, were also mentioned. Although there were no significant differences, all of the descriptions regarding recognising one's own competences and critical thinking were mentioned only among graduates in the *limited evaluation group*.

Table 13. Main categories, sub-categories and frequencies of graduates' descriptions regarding what they would have needed more of while at university

Categories	***Rich evaluation group*** n = 29	***Limited evaluation group*** *n = 28*
Work-related practices (40)		
Working life orientation (15)	6	9
Practice (14)	8	6
Networking (8)	6	2
Recognising own competences (3)	0	3
Generic skills (22)		
Social and presentations skills (20)	9	11
Critical thinking (2)	0	2
Study counselling (5)		
Study counselling and support (5)	1	4
Specific knowledge (4)		
Business knowledge (4)	3	1

6.5 Graduates' career success (Study IV)

Graduates' career success was explored by using different variables, such as their current employment situation, work history and job satisfaction as well as experienced difficulties in working life (Study IV). The results showed that most of the graduates were employed three years after graduation and that the majority of the graduates had a job related to their own academic field. The results showed no significant differences in the employment situation of graduates in the *rich* and *limited evaluation groups*, although certain minor differences were detected. Most of the graduates in the *rich evaluation group* had a job related to their own academic work and less jobs related to non-academic work compared to graduates in the *limited evaluation group*. In addition, the graduates in the *rich evaluation group* had, on average, shorter unemployment periods than graduates in the *limited evaluation group*. In terms of job satisfaction, graduates in the different groups did not statistically significantly differ in terms of their job satisfaction ($t = 1.93$, p. 059), although the scores for graduates in the *rich evaluation group* were higher ($M = 4.24$, $SD = 1.09$) than the scores for graduates in the *limited evaluation group* ($M = 3.58$, $SD = 1.28$).

Three years after graduation, graduates were asked what kind of challenges they had faced in working life. The results showed that the challenges were related to: 1) individual factors, 2) individual difficulties in employment and 3) factors related to the workplace. Graduates mentioned most often challenges related to individual factors (Table 14). For example, they reported a need for more generic skills, especially social skills and presentation skills. Performance anxiety was also mentioned by some graduates as well as the need for better time management and well-being. There was a statistically significant difference in terms of individual difficulties in employment as a challenge faced by graduates in working life ($X^2 = 7.007$, df = 1, p = .008). Graduates in the *limited evaluation group* mentioned employment as a challenge more often (11 mentions) than did graduates in the *rich evaluation group* (four mentions). These mentions included, for example, difficulties in finding employment, uncertainty about finding employment in one's own study field and dealing with unemployment. Factors related to the workplace included the content of the work and the organisation of work; for example, graduates mentioned not feeling challenged enough at work or poor leadership.

Table 14. Main categories, sub-categories and frequencies of the challenges faced in working life

Categories	***Rich evaluation group***	***Limited evaluation group***
Individual factors (32)		
Generic skills (20)	9	11
Time-management (8)	6	2
Well-being (4)	3	1
Individual difficulties in employment (15)		
Employment (15)	4	11
Factors related to workplace (17)		
Contents of work (7)	4	3
Organisation of work (10)	6	4

In the survey, graduates were asked if they have experienced any difficulties in employment after graduation and the reasons for the difficulties. A total of 52% (n = 30) of graduates had experienced difficulties. The results showed statistically significant differences between graduates in the *rich* and *limited evaluation groups* in terms of poor employment situation (t = -2.821, p < .05, Cohen's d = 1.01) and uncertainty regarding one's own goals (t = -2.75, p >.05, Cohen's d 1.05). Graduates in the *limited evaluation group* scored higher on both items compared to graduates in the *rich evaluation group* (Table 15). In general, the

scores of graduates in the *limited evaluation group* were higher for all of the items than the scores of graduates in the *rich evaluation group*. Only the inadequate networks item scored higher among graduates in the *rich evaluation group*, although the difference was not statistically significant.

Table 15. Differences in the reasons mentioned by graduates for their difficulties in finding employment

Items Scale 1–5	***Rich evaluation group* (N = 12)**	***Limited evaluation group* (N = 18)**	**t**	**p**
Poor employment situation in field	3.08 1.51	4.39 1.04	-2.82	p <.05*
Inadequate networks	3.17 1.47	3.06 1.39	.21	p >.05
Lack of work experience	2.92 .10	3.61 1.29	-1.58	p >.05
Subjects in the degree	2.92 1.31	3.39 1.09	-1.07	p >.05
Uncertainty of one's own competences	2.17 1.34	2.94 1.21	-1.65	p >.05
Lack of clarity of one's own goals	1.83 1.11	3.11 1.32	-2.75	p <.05*

Table 16. Summary of the main findings from sub-studies I–IV.

Study	**Main findings**
Study I	Graduates' evaluations of their academic competences, confidence in their success in working life and the usefulness of their work experience varied. Four graduates profiles were identified: Rich descriptions/High confidence Rich descriptions/Low confidence Limited descriptions/High confidence Limited descriptions/Low confidence Graduates in the rich profiles perceived the high-level cognitive and practical benefits of their work experience, whereas graduates in the limited profiles only perceived practical benefits or they were unable to perveice any benefits of their work experience.
Study II	Deep approach to learning and organised studying correlated positively and surface approach negatively with academic competences. Rich evaluations of academic competences were related to descriptions of deep study processes and putting an effort into studying. Limited evaluations of academic competences were related to expressions of surface study processes as well as deep study processes, but putting effort into studying was not mentioned. Graduates in the *rich evaluation group* were more satisfied with their degree than graduates in the *limited evaluation group*.
Study III	Academic work was related to a deep approach to learning. Non-academic work was related to a surface approach to learning and unorganised studying. Organised studying was positively and a deep approach negatively related to study pace. Own academic work had a direct relation to study pace when working more than 20 hours per week. Doing more 20 hours of non-academic work per week had a negative relation to the thesis grade.
Study IV	Most of the graduates had found work three years after graduation. Graduates in the *rich evaluation group* had more *own academic* work than did graduates in the *limited evaluation group*. Graduates in the *limited evaluation group* mentioned encountering more challenges in relation to finding employment. Graduates in the *limited evaluation group* perceived the poor employment situation and a lack of clarity of their own goals as reasons for their difficulties in finding employment more often than did graduates in the *rich evaluation group*.

7 Discussion of the main findings

This chapter discusses the main findings of the present doctoral thesis. First, it discusses the elements of employability and their interrelationships. Second, it focuses on the findings regarding the relationships between work experiences, approaches to learning and study success. Finally, it assesses graduates' evaluations of the usefulness of their degree and career success.

7.1 Elements of graduates' employability

The first main aim of this doctoral thesis was to explore how graduates perceive of their employability at the time of graduation. More precisely, graduates' evaluations of their academic competences, self-efficacy beliefs and the usefulness of their work experience to their studies were explored (Study I). The second aim was to explore how approaches to learning are related to the evaluations of their academic competences (Study II). Next, the main findings of the Study I and Study II are discussed.

7.1.1 Ability to describe academic competences

One of the main findings of this doctoral thesis has to do with the variation among university graduates' evaluations and descriptions of their competences at the time of graduation. Two main groups were identified based on the variation in graduates' evaluations of their academic competences, labelled *rich evaluation group* and *limited evaluation group*. Graduates in the *rich evaluation group* were able to provide detailed analyses of their competences, including various and qualitatively different demanding competences, such as critical thinking and applying knowledge, and as well as practical competences. Graduates in the *limited evaluation group* described their competences narrowly, expressing only such practical competences as communication skills, language skills or IT skills, or else some of them had difficulties in describing any academic competences at all. Nikitina and Furuoka (2012) have also found that students are not always able to describe the full range of generic competences that they are expected to develop during their studies, although students are aware of the importance of them. The present study indicates many individual differences in how graduates are able to

see the benefits of their university studies in light of the academic competences they have been able to develop. However, it should be noted that the graduates in the *limited evaluation group* may also have developed other competences than the practical ones they mentioned. This finding is in line with results showing that students do not recognise that presentations, group work or meeting deadlines are designed to develop their employability skills (Tymon, 2013).

7.1.2 Academic competences and approaches to learning

The present doctoral thesis investigated how students' approaches to learning are related to their academic competences. The results from Study II were in line with previous studies showing a positive relationship between academic competences and a deep approach to learning as well as organised studying and a negative relationship with a surface approach to learning (DiPerna & Elliot, 1999; Kreber, 2003; Lizzio, Wilson, & Simons, 2004; Nelson Laird et al., 2014; Richardson, 2002; Sharp, Hemmings, Kay, & Sharp, 2017). Furthermore, the present study showed that a deep approach to learning had stronger relations with academic competences than do other approaches. In addition, the interviews revealed that applying a deep approach to learning require the use of different academic competences, such as an ability to analyse and structure information. Therefore, the results indicate the relationship between academic competences and approaches to learning is bidirectional and that different academic competences are intertwined with the different approaches to learning, especially with the deep approach to learning.

The interviews also revealed the interesting finding that graduates in *limited evaluation group* also provided descriptions of deep study processing, i.e. the deep approach to learning. Similarly, Hyytinen, Toom and Postareff (2018) found that although students' performance on critical thinking tests varied, they did not differ in terms of taking a deep approach to learning. Thus, it seems that the deep approach to learning is not enough for being able to recognise and develop competences extensively; some of the graduates who described only a limited number of competences, or who had difficulties in describing any of them, also expressed applying a deep approach to learning. There is evidence that self-regulation is more strongly related to competences than the deep approach to learning (Zeegers, 2004) and that self-regulation is positively related to the deep approach to learning and negatively related to the surface approach to learning (Heikkilä & Lonka, 2006; Räisänen, Postareff, & Lindblom-Ylänne, 2016). Thus, self-regulation skills that consist of setting goals for learning, monitoring learning and studying as well as reflecting on the learning process afterwards are important with respect to competences and the ability to describe them (Zimmerman, 2002).

Thus, the present doctoral thesis reveals that graduates who have difficulties in evaluating and describing their competences may lack self-regulation skills or have general problems with regulating their studies. Graduates in the *limited evaluation group* had difficulties in reflecting on what they had learned during their university studies. These results are in line with students who take an unreflective approach to their studies, meaning that they have unreflective study processes and difficulties in fitting the subject matter into a coherent whole (Lindblom-Ylänne, Parpala, & Postareff, 2018). In addition, the results of the present study are similar to findings by Lonka et al. (2008) regarding students with a 'cookbook orientation'. These students emphasised certain knowledge and the practical value of their studies and applied a surface approach to learning. Similarly, graduates in the *limited evaluation group* stated that only practical, specific and concrete skills can be directly applied to work.

The main difference in terms of learning between the graduates was that graduates in the *rich evaluation group* mentioned that they had put much effort into studying and learning the academic competences compared to those in the *limited evaluation group*, who did not mention putting much effort into their studies or especially learning different competences. Similarly, evidence shows that students who spend more time studying perform better on critical thinking tests (Arum & Roksa, 2011). Chan and Fong (2018) found that students are motivated to learn academic competences if they perceive them as being important for their future career. Thus, it might be that some students do not realise the importance of academic competences for their future careers and thus do not put enough effort into learning them (Gedye, Fender, & Chalkley, 2004). Research shows that motivation to develop new skills is related to the development of competences and perceived employability (Clements & Kamau, 2017). To conclude, students' activity plays a significant role in developing generic competences (Choi & Rhee, 2014; Murdoch-Eaton & Whittle, 2012) as well as the individual responsibility they take for developing competences (Barth, Godemann, Rieckmann, & Stoltenberg, 2007), and this kind of activity and responsibility was also evident among graduates in the *rich evaluation group*.

7.1.3 Usefulness of work experience

Study II showed that there was variation in how graduates evaluated the usefulness of their work experience. It also indicated that graduates' perceptions of the usefulness of their work were related to the evaluations of their competences. Graduates in the *rich evaluation group* were able to describe qualitatively different benefits gained from their work experience. Most of them perceived high-level cognitive benefits, such as being able to apply knowledge to practice and develop their own thinking. They also mentioned practical benefits, such as the development of time-management and social skills. Thus, this replicates

previous studies showing that the ability to link theory to practice (Shaw & Ogilvie, 2010; Trede & McEwen, 2015) as well as problem-solving and communication skills (Crebert et al., 2004) are often developed through students' work experience. Graduates in the *limited evaluation group* described only the practical benefits gained from their work or else no benefits at all. The results indicate that graduates in the *rich evaluation group* were able to reflect more comprehensively on the competences they had acquired from different contexts. In other words, they were able to transfer skills to another context, which usually requires students having high-level learning skills and opportunities to apply their knowledge (Bennett, Dunne, & Carré, 1999) as well as strong motivation and self-regulation skills (Billing, 2007; Gegenfurtner, Veermans, Festner, & Gruber, 2009).

There is evidence that graduates had difficulties in identifying skills learned at work and transferring them to another context (Marshall & Cooper, 2001) as well as being able to reflect on their work experience and link theory to practice (Smith et al., 2007). It was interesting that graduates in the *rich evaluation group* were able to see the usefulness of all types of work experience, in other words, they also noted the relevance of non-academic work not directly related to their study fields, whereas graduates in the *limited evaluation group* usually stated that because they did not have work experience in their own study field, they could not see the usefulness of it. Scholars have argued that the quality of the work experience depends on how well students can see the usefulness of it and learn from it (e.g. Blackwell et al., 2001). To conclude, in order for graduates to see the usefulness of their work experience, good metacognitive skills and the ability to apply competences are needed.

7.1.4 Confidence in success in working life

The final element of employability that was explored was graduates' confidence in how well they would succeed in working life. The results showed that such confidence was related to the evaluations of their academic competences, meaning that graduates in the *rich evaluation group* were more confident that they would succeed in working life than were graduates in the *limited evaluation group*. However, the results showed that some of the graduates in the *limited evaluation group* also had high levels of confidence. They mentioned that they were confident because they had work experience or else they already had a job at the time they graduated. This is line with previous research showing that work experience enhances students' confidence (Ehiyazaryan & Barraclough, 2009; Shaw & Ogilvie, 2010). Research has also shown that students with work experience are more confident about entering working life and that they have higher expectations of job security (Oliver, 2011). However, there is a possibility

of bias here due to the fact that graduates with jobs at the time of transition might have found it easier to be confident about their working life success compared to their unemployed counterparts. In the present study, graduates' low level of confidence was due to the fact that they perceived of themselves as not having enough competences for working life or not having enough work experience in their own academic field. It was worrying to find graduates with limited evaluations of their competences and low confidence because in the transition phase, and in light of their employability prospects, it would be important that graduates are able to describe their competences and have confidence in their future success in working life (Knight & Yorke, 2003).

Study II revealed important finding that graduates' perceptions of their competences were also related to their satisfaction with the degree. Graduates in the *rich evaluation group* were generally more satisfied with their degrees than graduates in the *limited evaluation group*, where there was more variation in terms of satisfaction. Similarly, previous studies have found that students who described themselves as having developed a greater variety of competences were also more satisfied with their university studies (Grace et al., 2012; Lizzio, Wilson, & Simons, 2002). This is important because a positive educational experience is related to later satisfaction in working life (Mora, García-Aracil, & Vila, 2007). Thus, satisfaction with the degree is important for future employability because it may well cause graduates to feel more confident about having success in their working life.

7.2 The relationship between work experience, approaches to learning and study success

The third main aim of this doctoral thesis was to explore how students' work experience, approaches to learning and study success, as measured by their study pace and thesis grade, were related to each other. Study III showed that different kinds of work experiences had different kinds of relationships with the approaches to learning as well as with study success. In addition, the present study has indicated that approaches to learning are important factor to take into account when exploring the relation between work experience and study success. In more detail, *other academic* work was indirectly and negatively related to study pace through a deep approach to learning, whereas *non-academic* work had an indirect negative effect on study pace through an organised studying. Thus, it seems that doing *other academic* work may support students' learning by enhancing one's deep approach to learning, or, conversely, it may be that in order to benefit from *other academic* work students need to explicitly create links between working in another academic field and studying in one's own. Furthermore, as Study II

revealed, there are individual differences in graduates' abilities to perceive the usefulness of work experience for their studies and the amount of effort they had put into learning competences as well as applying theory to practice.

Previous studies have indicated that work related to one's chosen field of study promotes student learning through developing different competences and helping students to integrate knowledge with practice (James, 2000; Smith et al., 2007). Thus, it was surprising that *own academic* work was not related to the different approaches to learning and, in particular, to the deep approach to learning. The present study, however, indicates that in non-professional fields, for example in humanities and the social sciences, this relationship is not necessarily so straightforward. The majority of students in this study represented non-professional fields, and the variation in terms of their *own academic* work may be much wider than in professional fields. The link between work experience in one's own field and one's type of studying might not be as obvious in non-professional fields as in professional fields. In addition, the work context has a role in workplace learning (Kyndt, Dochy, & Nijs, 2009). Therefore, even if students are working in their own academic field, the work context may not necessarily support their learning.

Studies conducted in Greece, Italy, Norway and Canada have shown that working less than 20 hours a week had no effect on students' study progress or dropout risk (Hovdhaugen, 2013; Katsikas, 2013; Moulin et al., 2013; Triventi, 2014). Similarly, there is evidence that the more hours students work, the more negative is the effect on their grades (Bradley, 2006; Callender, 2008; Sanchez-Gelabert, Figueroa, & Elias, 2017). However, some studies have found no relationship between working and grades (Nonis & Hudson, 2006; Sulaiman & Mohezar, 2006). The results of Study III were in line with previous studies showing that part-time work was not negatively related to study pace or thesis grade. Previous studies have shown that working in one's own study field was related to higher grades (Brooks & Youngson, 2014; Wang et al., 2010). This result was not confirmed in the present study. The results from Study III showed no relationship between one's own academic work and thesis grade, although it showed a negative relationship between non-academic work and thesis grade. Previous studies have varied in how study success was measured, which can have an influence on the results. The present study showed more effects on study pace than on thesis grade. Thus, as suggested by Robotham (2009), working has other negative effects, such as tiredness and less time for social activities, than achieving lower grades only. Moreover, in most cases work has been found to interfere more with students' leisure time, not with their study time (Hovdhaugen, 2013).

Furthermore, the models employed in Study III revealed the direct relations between the nature of work and approaches to learning and study success. *Non-academic* work was positively related to the surface approach to learning and negatively related to the organised studying. Students might have difficulties in

combining work and studying because they are very different in nature, and therefore, their problems with respect to time and effort management might increase their willingness to adopt the surface approach to learning (Kember, 2004; Lizzio, Wilson, & Simons, 2002). In addition, the deep approach to learning was negatively related, and the organised studying positively related, to study pace, thereby confirming previous findings that organised studying is an important factor enhancing students' study pace (Haarala-Muhonen, Ruohoniemi, & Lindblom-Ylänne, 2011; Rytkönen et al., 2012). The relationship between the deep approach to learning and study pace seems to be more complicated: the result was in line with previous research indicating that deep-level learning is not always positively related to study pace (Kamphorst, Hofman, Jansen, & Terlouw, 2013; Rytkönen et al., 2012). There is evidence that some students may score highly on the deep approach to learning but low on the organised studying and, thus, progress slowly in their studies (Haarala-Muhonen, Ruohoniemi, & Lindblom-Ylänne, 2011).

7.3 Graduates' transition to working life: usefulness of degree and career success

Evaluations of competences three years after graduation

Study IV followed graduates in the *rich* and *limited evaluation groups* from graduation into working life and compared their perceptions of the usefulness of their degree and career success. The results reveals no differences between the groups in terms of their evaluations of their academic competences. On the basis of the finding that they differed in the evaluations of their academic competences at the time of their graduation, these results from three years after graduation indicate that some graduates were not able to identify and evaluate their competences before they were able to use them in practice and in real working-life situations. Thus, real examples from working life and opportunities to use skills in practice are important during studies (Ehiyazaryan & Barraclough, 2009; Vaatstra & De Vries, 2007). Graduates in the *limited evaluation group* also mentioned three years after graduation that their university studies had helped them to develop more demanding competences, such as critical thinking, and to see different perspectives, which they had not mentioned at the time of graduation. It was, however, interesting that graduates in the *rich evaluation group* scored lower in all competences three years after graduation, whereas graduates in the *limited evaluation group* evaluated the development of their competences at university more positively than at the time of graduation. This is in line with previous evidence showing that students appear to underestimate their competences at the time of graduation (Baartman & Ruijs, 2011). In addition, the

results showed that significant changes in their evaluations of academic competences had occurred within the the groups. Graduates in both *rich* and *limited evaluation groups* evaluated their collaboration and communication competences as being less developed than they evaluated at the time of graduation. Graduates in the *rich evaluation group* rated their skill at developing new ideas more highly at the time of graduation than three years after graduation. One explanation for the lower scores three years later by graduates in the *rich evaluation group* is that they had demanding jobs requiring different competences, and therefore, the evaluations of their competences after three years were lower than at the time of graduation. Three years after graduation, their metacognitive skills had become even more developed in working life and had enabled them to evaluate more critically their gained competences. Similarly, there is evidence that graduates evaluated the requirements of working life with respect to different generic competences more highly than they did the skills developed at university (Brachem & Braun, 2018; Teichler, 2007), or else they perceived the competences as being more important than their own ability in those competences (Chan & Fong, 2018; Nabi & Bagley, 1999). A study by Rainsbury, Hodges and Burchell (2002) compared students' and graduates' evaluations of the importance of academic competences and found that graduates perceived almost all competences as being more important than did students, and thus, they concluded that these perceptions change when individuals transition from their studies into the workplace.

Satisfaction with the degree

Study IV assessed graduates' level of satisfaction with their university degree from the working life perspective. The results showed that in general, all graduates were satisfied with their degree and there were no significant differences between those in the *rich* and *limited evaluations groups*. However, graduates in the *rich evaluation group* felt that their university education corresponded more directly with their current job. Graduates in both groups expressed a need for more work-related practices, such as more information on jobs, practice during their studies, counselling related to working life and its demands, and networking. Similarly, previous studies have shown that there should be more practice and internships, collaboration with industry, project work and leadership training during university studies (Crebert et al., 2004). The results also revealed that graduates need more collaboration and communication skills for working life, which is also in line with the findings from previous studies (Andrews & Higson, 2008; Elias & Purcell, 2004; García-Aracil & Van der Velden, 2008; Puhakka, Rautopuro, & Tuominen, 2010; Teichler, 2007). Furthermore, Study IV showed that some graduates in the *limited evaluation group* seemingly still had difficulties in assessing such competences as critical thinking and recognising them, similarly as they had at the time of graduation.

The present doctoral thesis further revealed that the evaluations of academic competences were positively related to satisfaction with the degree (Study II and IV). This finding has been replicated also in other studies showing that a relationship between how graduates evaluated their competences and their overall satisfaction with the course or degree (Grace et al., 2012; Lizzio, Wilson, & Simons, 2002; Tuononen et al., 2019). Therefore, it can be argued that graduates who are not satisfied with their degree are not able to recognise all the competences they have developed during their studies or realise the potential provided by the degree for working life. It was also noteworthy that the relationship between academic competences and satisfaction with the degree was similar three years after graduation. The relationship between competences and satisfaction with the degree may also indicate that different kinds of students perceive the teaching-learning environment differently, as previous studies have also shown (Lawless & Richardson, 2002; Parpala et al., 2010) which is important to bear in mind when interpreting the results.

Career success

Study IV explored graduates' career success, and the results showed that graduates in the *rich evaluation group* more often did academic type of work that was related to their study field. It is interesting that this difference in the nature of work between graduates in the *rich* and *limited evaluation groups* at the time of their graduation was already observed in Study I. The results from Study IV were in line with a study showing that self-assessments of competences are not related to graduates' work situations in terms of being employed or unemployed (Piróg, 2016). Graduates in the *rich* and *limited evaluation groups* did not differ in terms of their levels of employment or unemployment.

There is evidence that graduates who felt that they had developed more competences at university were more satisfied with their jobs and career success (Braun, Shkeik, & Hannover, 2011; Van Dierendonck & Van der Gaast, 2013; Vermeulen & Schmidt, 2008) and also had more often found a job requiring an academic education (Semeijn et al., 2006). There is evidence that working in one's own study field increases job satisfaction (García-Aracil & Van der Velden, 2008). This doctoral thesis has presented similar findings. The present study is also in line with a previous study showing that graduates who are less satisfied with their degree had experienced a longer period of unemployment than their more satisfied counterparts (Figueiredo, Biscaia, Rocha, & Teixeira, 2015). There is evidence that students who focused on learning, continuous improvement and developing new skills are more satisfied with their careers after graduation (Van Dierendonck & Van der Gaast, 2013). Similarly, as described earlier, graduates in the *rich evaluation group* devoted more time and effort to learning different competences while studying. Interestingly, Braun, Sheikh and Hannover (2011) identified a positive relationship between career success and both time-

management skills and being able to meet challenges, suggesting that the ability to organise and regulate one's learning is particularly important for future career success.

Study IV explored what kinds of challenges graduates have encountered in working life. The results showed that 52% of the graduates had experienced difficulties in finding employment after graduation. The results also showed that graduates in the *rich and limited evaluation groups* evaluated their reasons for these difficulties differently. Graduates in the *limited evaluation group* expressed uncertainty about their goals as well as poor employment situation more often than did graduates in the *rich evaluation group*. Uncertainty about one's own goals might also explain why graduates in the *limited evaluation group* experienced more challenges related to employment. There is evidence that graduates who lack clear career plans have had more temporary or low-quality jobs (Pollard, Pearson, & Willison, 2004). In addition, the results indicate that graduates in the *rich evaluation group* seemingly possessed the skills to set clear goals, which are an important part of self-regulation skills (Pintrich, 2004). A previous study showed that a lack of clear future goals and low career-orientation were found among arts students (Mikkonen, Ruohoniemi, & Lindblom-Ylänne, 2011). Most of the participants in the present studies were from non-professional fields, such as humanities and the social sciences. Thus, in those fields it is important to take advantage of opportunities for career planning already during studies and to practice proactive career behaviour, meaning that it is especially important for students to seek guidance in planning for their career and start networking (e.g. Okay-Somerville & Scholarios, 2017). Research also shows that general study guidance was positively related to self-assessed academic and generic skills (Skaniakos, Honkimäki, Kallio, Nissinen, & Tynjälä, 2018). Furthermore, it might be that graduates in the *limited evaluation group* had fewer opportunities to work in a field related to their studies, and thus they experienced more such difficulties. To conclude, this study suggests that the ability to make career plans is important for career success (Jackson & Wilton, 2017).

Most of the challenges that graduates reported having encountered in working life were related to a need for more academic competences, especially presentation and social competences. Furthermore, the result is in line with quantitative results in which graduates scored lowest in collaboration and communication competences at both measurement points; interestingly, the scores were even lower after graduation. It can therefore be suggested that graduates need more collaboration and communication competences for working life (Andrews & Higson, 2008; Elias & Purcell, 2004; García-Aracil & Van der Velden, 2008; Puhakka, Rautopuro, & Tuominen, 2010; Teichler, 2007). A recent Finnish career survey showed similar results when graduates were asked to evaluate what kinds of skills they had developed during their university studies compared with the skills needed in working life (Tuononen et al., 2019). The largest gap was between

organising and coordination skills as well as collaboration skills. Respondents noted that these skills were needed in working life but had not been developed that much during their university studies (Tuononen et al., 2019). The present doctoral thesis has shown that most of the challenges that graduates mentioned were related to a need for a wider variety of competences in working life. It is noteworthy that these challenges can be taken into account in education.

8 General discussion

The present doctoral thesis explored university graduates' employability and career success. Employability was explored by focusing on graduates' competences, learning, efficacy beliefs and work experience. This doctoral thesis has provided new information on the factors that are related to employability and it has extended previous employability models by adding aspect of learning as a single dimension. Furthermore, it has provided empirical evidence that elements of the USEM (understanding, skills, efficacy beliefs and metacognition) model are crucial to the success of graduates in their early careers, and it has shown individual differences in graduates' perceptions of their employability. The present study has demonstrated that the ability of graduates to recognise the various academic competences that they developed at university and deep-level learning and effort management in studying are important factors with respect to success in working life.

To summarise, the factors that are related to employability and career success are presented in Figure 7. The individual factors are all related and intertwined with each other. For example, in order to describe diverse competences, good reflections skills are needed. In addition, applying a deep approach to learning is closely intertwined with academic competences, and vice versa; in order to develop academic competences, a deep approach to learning as well as good effort management are needed. Graduates' ability to see the usefulness of their work experience was also related to their deep approach to learning and to their ability to reflect on their learning. All of these aspects were associated with a high level of confidence that the graduate would succeed in working life. After graduation, these individual elements indicating good employability were related to positive perceptions of the usefulness of their university education, such as developing diverse academic competences and high satisfaction with the degree.

In light of graduates' future career success, significant indicators include having work in one's own academic field and a high degree of satisfaction with the work. However, it should be noted that not all the individual factors have to be present in order to succeed in working life. For example, having work experience may have given graduates confidence in the transition phase, and thus, their perceptions of the competences developed at university were not so important. Thus, it is important to remember that individuals act also in other contexts where they are able to develop their employability. Furthermore, students and graduates might have different aims for their university studies. For example, some students do not aim to find employment in the field of their studies after graduation. Hence, employability is always individually constructed and career

success can offer too narrow a perspective for adequately evaluating it. The factors related to employability and career success focused on in the present study are presented in Figure 7 below.

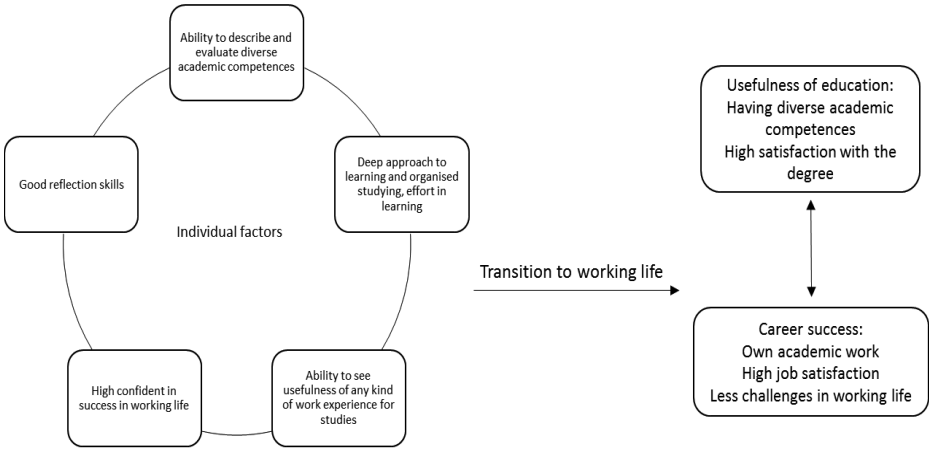

Figure 7. Summary of the factors related to employability and career success in the present doctoral thesis.

In the introduction, three questions were posed: 1) How can universities enhance graduates' employability, 2) how is learning related to employability and 3) how does university education meet the requirements of working life. The present doctoral thesis showed that employability is related to students' learning, and thus, it has suggested that employability can be enhanced by improving the quality of student learning. The results further revealed that all in all, university education corresponds quite well with the requirements of working life because most of the graduates are employed in the field of their study and they feel that they successfully developed many academic competences at university. The results, however, also indicate that competences and the requirements of working life do not always match up so well. Thus, university education should offer students different opportunities and rich learning environments to develop diverse competences. In addition, it is important that universities keep track of what kind of new competences are needed in working life contexts.

Students working while completing their studies is a widely discussed topic especially in Finland, where it is possible to progress slowly in one's studies without dropping out, and thus working has been considered to be one reason for delays in completing one's studies. Based on the present doctoral thesis, it can be argued that the relationship between working and study success is not straightforward, because it depends a great deal on a student's organising skills.

Similarly, the usefulness of work experience depends on a student's ability to reflect on and transfer competences to another context.

8.1 Practical implications

One of the main findings was that some graduates have difficulties in describing and evaluating their academic competences. Therefore, it is essential that students understand the importance and relevance of different academic competences for future work so that they are motivated to develop them during their studies (Choi & Fung, 2018; Crebert et al., 2004; Lizzio and Wilson, 2004). It would be good to discuss the expected learning outcomes with students in order to find out how relevant they perceive these competences for their personal development (Jenert, 2014). However, it should be noted that students are not necessarily aware of what kinds of competences they will need in the future.

University education aims to provide students with diverse academic competences. It is important that competences are taken into account at different levels: degree, degree programme and course levels. Research shows that, according to graduates, academic competences should be emphasised more in assessment and the curricula (Crebert et al., 2004). Competences should be integrated into course objectives, teaching methods and assessment criteria. There is ample evidence that different kinds of learning environments support the development of competences (Kember & Leung, 2005; Vaatstra & De Vries, 2007). Different learning activities and environments are needed to develop a rich variety of competences (Kember, Hong, Yau, & Ho, 2017). Usually this means changing the teaching and learning methods (Jenert, 2014). In addition, there is evidence that competences are better developed together with subject knowledge than in separate courses (Schaeper, 2009).

The present doctoral thesis has shown that university education should focus especially on developing students' collaboration, communication and time-management competences. These kinds of competences can be developed by providing active, collaborative learning environments. For example, cooperative learning (Ballantine & McCourt Larres, 2007), flipped learning (Zainuddin & Perera, 2019); problem-based learning (Knipprath, 2017), project-oriented learning (Choi & Rhee, 2014), real-world examples (Ehiyazaryan & Barraclough, 2009) and case studies (Boyce, Williams, Kelly, & Yee, 2001) have all been found to have a positive impact on the development of students' competences. Furthermore, it is important to create tasks that require the use of different skills (Kember, 2009; Nelson Laird et al., 2014). In addition to the above-mentioned activities and clearly defining the expected learning outcomes, it is important to

encourage students to reflect on their learning, which may also facilitate a transfer of competences (Jackson, 2016).

The present doctoral thesis has shown that developing students' metacognitive skills during their studies is essential for good employability. In addition, it can be argued that students need to practice their reflection skills in order to better express their academic competences. New kinds of assessment methods, such as digital portfolios, can be used to assess competences and to provide opportunities for students to reflect on their learning (Sporer, Heinze, Jenert, & Reinmann, 2007). In addition, by using formative assessment and self-assessment or peer assessment, students' perceptions of their competences can be improved (Hortigüela Alcalá, Picos, & López Pastor, 2018). Furthermore, metacognitive skills can be developed through peer assessment (Crisp, 2012; Nicol & Macfarlane-Dick, 2006). Formative assessment and feedback are also important in terms of students' self-beliefs, which is important for employability (Turner, 2014). The present doctoral thesis has revealed that self-efficacy beliefs should be emphasised more in education. They can be enhanced through authentic tasks and by applying knowledge and skills within different situations (Van Dinther, Dochy, & Segers, 2011).

Considering the fact that many students work during their studies, mostly because of financial reasons, the focus should be more on how students can be supported to combine studying and working, thus helping them to take full advantage of such a situation. Students should be encouraged to reflect on their work experience and to integrate it into their studies because work context may provide opportunities to transfer knowledge and skills (Davies, 2000; Ehiyazaryan & Barraclough, 2009). The present study as well as a previous study by Crebert et al. (2004) have revealed that students would like to have more practice in their theoretical studies and that students have called for more links between theory and practice. Therefore, teachers should offer more practical examples and applications.

The present study has revealed that some graduates have unclear career goals, which the graduates mentioned as one reason for later difficulties in working life. Thus, career guidance and career planning are important during studies. Furthermore, research shows that graduates who are more satisfied with their degree tend to have studied in professional degree programmes (Figueiredo et al., 2015). The University of Helsinki has conducted a major curriculum reform, with one of the key points being to support students' future employability by adding courses specifically related to employability, including career planning, as well as emphasising the learning of generic competences. The future will show what kind of an impact these changes will have for students and their employability.

8.2 Methodological and ethical reflections

The present doctoral thesis was a mixed-methods study that applied both quantitative and qualitative methods to form a comprehensive picture of the phenomenon under study and highlight the strengths and weaknesses of both methods (Johnson & Onwuegubuzie, 2007; Teddlie & Tashakkori, 2009). The results showed that by using both quantitative and qualitative methods, it was possible to obtain more insights into the phenomenon. Furthermore, the individual level analysis revealed more variation among graduates and showed relations that were not revealed in the group-level analysis (Study I, II and IV).

The quality of mixed-methods research can be assessed by focusing on the quality of inference and inference transferability (Teddlie & Tashakkori, 2009). Quality inference consists of design quality and interpretative rigour. Regarding the design quality, a longitudinal mixed-methods study design can be considered appropriate and is one of the main strengths of the present study. Tracking the same graduates from graduation into working life is quite rare, and it made it possible to explore changes in graduates' evaluations of their academic competences. Previous studies have focused on comparing students' and graduates' evaluations of their competences by using a cross-sectional study design (Gedye, Fender, & Chalkley, 2004; Rainsbury, Hodges, & Burchell, 2002). The data collection process resulted in 1023 survey answers and 83 interviews during the first phase. In the follow-up study, the response rate was 69%, which can be considered a good result. The HowULearn questionnaire is widely used and has been validated in many previous studies (see also Surveys, p. 26), which enhanced the quality of data collection. I tested the interview questions beforehand with a few participants to ensure that the questions were understandable and that they capture the phenomenon. To ensure interpretative rigour, the analyses were explained in detail and examples from the interviews were presented. In addition, the results were discussed in light of existing theories and previous studies in order to ensure and enhance the theoretical consistency of the study (Teddlie & Tashakkori, 2009).

Transferability of the results can be assessed in terms of their ecological, population, temporal and theoretical transferability (Teddlie & Tashakkori, 2009). The data in the present study were collected from only one Finnish university. Therefore, generalising the results to other Finnish universities or other countries needs to be done with caution. In addition, Finland is quite a unique context because university education is tuition-free and the system makes it possible to prolong studies without dropping out. However, the results of the present study are in line with studies conducted in other countries. *Population transferability* describes the level at which inferences and recommendations are applicable to other people. In the present doctoral thesis, the follow-up data were relatively

small in size, and therefore, the results should be treated with caution. In addition, the graduates were mainly from non-professional fields. It is important to bear in mind that graduates from other disciplines or from professional fields may have different perceptions of their employability and career success. Evidence shows that the value of skills and knowledge depends on the workplaces as well, because each graduate has different work experiences and they work in different contexts (Clark & Zukas, 2013; Mora, García-Aracil, & Vila, 2007).

Temporal transferability, how the results are applicable over time, is closely related to ecological transferability because context and society are changing all the time. The economic and employment situation in Finland can affect the difficulties graduates encounter in working life. Graduates in the present study graduated when the employment situation in Finland was difficult, even for graduates with a higher education. Thus, in a better employment situation graduates might have different kinds of experiences. *Theoretical transferability* relates to the evaluation of whether the same results would be obtained if the theoretical constructs are defined differently (Teddlie & Tashakkori, 2009). In this research area, where different concepts are used and various competences are measured, it is important to evaluate theoretical transferability. The results of the present study are in line with the results from many previous studies, indicating that, depending on the concept been studies, similar results can be obtained. However, comparison of the studies is difficult because different competences have been measured. In addition, it was important to think about what concepts were used in the interviews in order to ensure that graduates could understand the terms. For example, the term academic competences was not used in the interviews. Instead, the term general working life competences was used and the meaning of the concept was explained to the participants.

The present doctoral thesis followed the ethical principles for the conduct of research (National Advisory Board on Research Ethics, 2009). Participation in the study was voluntary and participants were informed that they could quit the study at any stage. The participants' anonymity was ensured by assigning them ID numbers, and extracts from the interviews were selected or modified so that they did not revealed information based on which the graduate could be recognised. The data have been stored and processed properly.

8.2.1 Methodological reflections on sub-studies

Next, some methodological issues are pointed out in more detail via the sub-studies. Study I explored the evaluations of academic competences, confidence in future success in working life and the usefulness of work experience. A total of

58 interviews ensured a good amount of variety in the evaluations, meaning that enough graduates were interviewed so that the answers became quite similar in nature and new ones no longer appeared. Study II explored the complex interrelations between academic competences and approaches to learning using quantitative and qualitative methods. Study III confirmed that the combination of both quantitative and qualitative research methods was important because it revealed that students may score highly on academic competences in the survey, even though they had difficulties in describing their competences in the interviews. This raised a question as to whether students were answering the survey items on the basis of their own opinions or whether they aimed to give the 'right' answers. On the other hand, the difference might be due to the fact that for some graduates, it is very difficult to identify competences without any list of options being given.

In Study III, the number of missing values concerning the work experience variables was quite high and thus the missing values were replaced. This might indicate that students had difficulties in evaluating their work experiences, and especially in differentiating between their own academic work and other academic work. In addition, only 9% (n = 92) of students had no work experience. However, the main aim of the study was to explore how the nature of work is related to approaches to learning and study success, and therefore the focus was on working students. Another methodological issue that might have an effect on the results and would be important to consider in the future relates to how study success was measured. Study III showed that the thesis grade has only minor effects on working and approaches to learning, and therefore the thesis grade is not necessarily the best the best indicator of study success because it does not describe general study success as much as GPA (grade point average). However, the thesis grade reflects how well students have learned to use the key academic thinking skills, such as skills in using research methods, critical thinking skills and skills in academic writing. Many prior studies exploring the relationship between working and study success have measured study success using students' personal evaluations of their general study success or the students' own evaluations of how working has affected their academic performance. The strength of the present doctoral thesis is that information on study success was gathered from the Student Register and not based on the graduates' own evaluations. Study III showed that the deep approach to learning was negatively related to study pace. This raises an important question as to whether study pace truly measures the quality of learning. In addition, it should be noted that the relationship between work experience and approaches to learning can be bidirectional, and causal relations cannot be inferred.

Study IV was a follow-up study, which is always a challenging study design. The amount of data (N = 57) was quite small for quantitative analysis, and therefore, only basic analyses were conducted. Graduates providing limited

evaluations were slightly overrepresented in the follow-up data, but otherwise participants were similarly represented in both data sets. It was good that not only those who perceived university education as being good and who had succeeded in working life answered the follow-up survey. In addition, the graduates' open survey answers were quite short and they were compared to their interview data at the time of graduation. The follow-up data enabled to explore changes in graduates' evaluations from the graduation phase to three years after graduation, which was a valuable addition to the present doctoral thesis.

8.2.2 Reflections on measuring academic competences

Several questionnaires are used to measure academic competences or generic skills. Braun, Woodley, Richardson and Leidner (2012) have identified several problems when using surveys to measure academic competences. For example, they found that abstract and vague expressions and double-barrelled items are commonly used. Similarly, Barrie (2006) has argued that skills are not usually well defined, stating, for example, only that graduates should possess decent writing skills. Similar problems were also found in the questionnaire used in the present doctoral thesis. For example, the item critical thinking was not explained in detail, and thus, it could be interpreted in several ways. In addition, some items included two different competences, such as the item measuring collaboration and communication and the item measuring the ability to make arguments and look for solutions, and hence these items might have been problematic for students to answer. However, when interviewing the participants, they were also asked to elaborate on the items measuring academic competences. In these interviews, the item measuring, collaboration and communication competences did not prove problematic because the graduates evaluated these items as having developed in a very similar way during their university studies. Regarding the item measuring the ability to make arguments and look for solutions, the graduates' responses were not as straightforward. They perceived that their competence in making arguments had developed more than their competence at looking for solutions during their university studies.

Furthermore, the main problem in the inventory used in the present doctoral study was that only seven items measured different academic competences, and they did not form a good coherent scale structure. Thus, the items could only be used as single items, which decreased their reliability. Moreover, it can be argued that by using single items, it is not possible to assess complex competences (Braun et al., 2012). The problem with measuring different kinds of competences on one scale has also been noted in many previous studies, where, for example, critical thinking, communication and problem-solving have been measured on a single

scale (García-Aracil & Van der Velden, 2008; Skaniakos et al., 2018; Van Dierendonck & Van der Gaast, 2013). Although Cronbach's alfa indicated good reliability for the scale, the question remains as to how theoretically coherent the scales are when they consist of so many different competences. Furthermore, the present doctoral thesis has demonstrated that different competences correlate differently with other factors, such as approaches to learning. Thus, putting these competences on the same scale may be problematic and important information may be lost as a result. Hence, it can be argued that instruments measuring academic competences should be more critically evaluated, especially since the results from these surveys are used in many ways, for example to evaluate the quality of teaching and education. Thus, it is important to ensure that these instruments are valid and coherent.

The present study used self-assessment to measure graduates' academic competences. Self-assessment questionnaires are widely used, although they are also criticised (e.g. Clements & Kamau, 2017). There is, however, also evidence that self-assessment might be a valid way to measure students' competences (Braun et al., 2012; Khaled et al., 2014; Kyndt et al., 2014). Baartman and Ruijs (2011) found that students are able to evaluate their competences quite well, although the study also revealed that students seem to overestimate their competences at the start of their course and underestimate their competences at the end of their studies. There is also evidence suggesting that high-achieving students tend to underestimate and low achievers overestimate their skills (Jackson, 2014). It must be noted that self-assessments of competences cannot be used as objective measurements of levels of competences (Schaeper, 2009). However, the validity of self-assessment must also be examined in light of what is being measured. For example, when the focus is on graduates' ability to assess their competences, self-assessment can be considered an appropriate method. Furthermore, self-assessment can be used to help students recognise and evaluate the competences that they intend to develop, as prior research has shown that self-assessment questionnaires can enhance students' reflection skills and help them to recognise their own strengths and weaknesses (Kyndt et al., 2014). In the present doctoral thesis, many of the interviewed graduates actually mentioned that filling in the questionnaire and participating in the interview were useful for them in terms of writing job applications and preparing for job interviews.

The perspective on which competences are being measured is important to take into consideration. For example, competences can be measured from the point of view of learning outcomes: 'Through this programme I have developed my ability to make value judgments about opposite perspectives' (Kember & Leung, 2011), or 'This course has helped me handling typical problems in this subject area' (Braun & Leidner, 2009). In addition, competences can be measured from an individual level perspective, for example how confident students are in their ability to use problem-solving skills (e.g. Grace et al., 2012; Van Dinther, Dochy,

Segers, & Braeken, 2013) or in how they evaluate their current level of different skills, 'My current level at these skills' (Chan & Fong, 2018). Thus, differences in questions need be taken into account when interpreting the results. In this doctoral thesis, graduates were asked to evaluate how they had developed different competences as part of their university studies. This perspective was used in the survey and also in the interview. However, in the interviews graduates described competences also from their own perspective and, for example, assessed whether they think that they have enough competences for working life. Thus, in the interviews these two perspectives were intertwined in the graduates' descriptions.

8.3 Future research

This longitudinal study followed students from the graduation phase into their working life and explored changes in the evaluations of their academic competences. In the future, more longitudinal studies following students during their studies and exploring the development of their competences are needed. At the University of Helsinki, students fill in the HowULearn questionnaire, which includes an assessment of their different academic competences, three times during their studies, and thus, there is an opportunity for a longitudinal study design at the University of Helsinki. In future studies, the relationship between study motivation for attending university (SMAU, Côte & Levine, 1997) and academic competences would be interesting to explore, as there is evidence that different motivations relate differently to the development of particular skills (Côte & Levine, 1997). In addition, it would also be important to explore how filling in the questionnaire and obtaining feedback both help students to recognise their academic competences. Kyndt and colleagues (2014) have argued that students also need feedback from the questionnaire in order to further develop their skills.

More research on the predictive validity of the questionnaires is needed (Braun et al., 2012). In other words, more research is needed on whether students who evaluate that they have good problem-solving skills actually have good problem-solving skills in practice. Additionally, more research is also needed on how different elements of various academic competences (knowledge, skills and attitudes) are developed and related to each other (Baartman & Ruijs, 2011). Finally, there is need for research exploring the relationship between cognitive abilities and the ability to reflect in more detail.

It can be argued that multi-methods research is important in order to provide a more comprehensive picture of competences and how they are used. For example, performance assessment can be used (e.g. Hyytinen, Toom, & Postareff, 2018). In addition, by observing and video-taping, for example, students' group work,

researchers will be able to obtain more information on students' actual teamwork skills.

In the present doctoral thesis, most of the graduates were from non-professional fields. However, there is evidence of disciplinary differences in terms of students' competences (Brachem & Braun, 2018; Kember & Leung, 2011) as well as in terms of how academic staff perceive of the importance of different competences in different disciplines (Jones, 2009; Krause, 2017). Therefore, future research is needed that explores disciplinary differences in greater depth. There is also a need to identify and contextualise academic competences in specific disciplinary contexts (Chan & Fong, 2018). Likewise, research exploring employability in different disciplines in more detail is needed, and it would be important to explore in the future, for example, graduates from non-professional fields who are not aiming to find employment after graduation.

Finally, there is evidence that positive relationships between peers and staff members are important for a successful transition from university to working life (Tett, Cree, & Christie, 2017). Thus, future studies should investigate in more detail the social aspects involved in the transition phase as well as how social background is related to learning, the development of competences and future career success. Also, larger data sets are needed in order to explore the various profiles of graduates entering working life and their career success. By conducting research on graduates' employability and especially on their academic competences, university education can be developed and thus ensure that graduates will have good employability also in the future.

References

Adele, A. E. & Spurk, D. (2009). The longitudinal impact of self-efficacy and career goals on objective and subjective success. *Journal of Vocational Behavior*, 74(1), 53–62.

Abrandt Dahlgren, M., Hult, H., Dahlgren, L.O., Hård af Segerstad, H. & Johansson, K. (2006). From senior student to novice worker: learning trajectories in political science, psychology and mechanical engineering. *Studies in Higher Education*, 3(5), 569–586.

Andrews, J. & Higson, H. (2008). Graduates employability: 'soft skills' versus 'hard' business knowledge: a European study. *Higher Education in Europe*, 33(4), 411–422.

Arnold, J., Loan-Clarke, J., Harrington A. & Hart, C. (1999). Students' perceptions of competence development in undergraduate business-related degrees. *Studies in Higher Education*, 24(1), 43–59.

Arum, R. & Roksa, J. (2011). *Academically Adrift. Limited Learning on College Campuses*. Chicago: The University of Chicago Press.

Baartman, L. & Ruijs, L. (2011). Comparing students' perceived and actual competence in higher vocational education. *Assessment & Evaluations in Higher Education* 36(4), 385–398.

Badcock, P.B.T., Pattison, P.E. & Harris, K-L. (2010). Developing generic skills through university study: a study of arts, science and engineering in Australia. *Higher Education* 60 (4), 441–458.

Ballantine, J. & McCourt Larres, P. (2007). Cooperative learning: a pedagogy to improve students' generic skills. *Education + Training*, 49(2), 126–137.

Bandura, A. (1997). *Self-efficacy. The exercise of control*, Freeman Company: New York.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioural change, *Psychological Review*, 84(2), 191–215.

Barrie, S. C. (2006). Understanding what we mean by the generic attributes of graduates. *Higher Education*, 51(2), 215–241.

Barth, M., Godemann, J., Rieckmann, M. & Stoltenberg, U. (2007). Developing key competencies for sustainable development in higher education. *International Journal of Sustainability in Higher Education*, 8(4), 416–430.

Baruch, Y. & Peiperl, M. (2000). The impact of MBA on graduate careers. *Human Resource Management*, 10(2), 69–90.

Bennett, N., Dunne, E. & Carré, C. (1999). Patterns of core and generic skill provision of higher education. *Higher Education*, 37(1), 71–93.

Bergman, L.R. & Magnusson, D. (1997). A person-oriented approach in research on developmental psychopathology. *Development and Psychopathology*, 9(2), 291–319.

Biggs, J. (2003). *Teaching for quality learning at university* (2nd ed.). Buckingham: SRHE & Open University Press.

Biggs, J. (1987). *Student approaches to learning and studying*. Melbourne: Australian Council for Educational Research.

Billing, D. (2007). Teaching for transfer of core/key skills in higher education: cognitive skills. *Higher Education*, 53, 483–516.

Blackwell, A., Bowes, L., Harvey, L., Hesketh, A. J. & Knight, P. T. (2001). Transforming work experience in higher education. *British Educational Research Journal*, 27(3), 269–286.

Boyce, G., Williams, S., Kelly, A. & Yee, H. (2001). Fostering deep and elaborative learning and generic (soft) skills development: the strategic use of case studies in accounting education. *Accounting Education*, 10 (1), 37–60.

Brachem, J-C. & Braun, E. M. P. (2018). Job-related requirements and competences of educational science graduates. *Journal of Further and Higher Education*, 42(2), 166–176.

Bradley, G. (2006). Work participation and academic performance: A test of alternative propositions. *Journal of Education and Work*, 19(5), 481–501.

Braun, E.M.P., Sheikh, H. & Hannover, B. (2011). Self-rated competences and future vocational success: a longitudinal study. *Assessment and Evaluation in Higher Education* 36(4), 417–427.

Braun, E., Woodley, A., Richardson, J.T.E. & Leidner, B. (2012). Self-rated competences questionnaires from a design perspective. *Educational Research Review*, 7(1), 1–18.

Braun, E. & Leidner, B. (2009). Academic course evaluation. Theoretical and empirical distinctions between self-rated gain in competences and satisfaction with teaching behaviour. *European Psychologist*, 14(4), 297–306.

Broadbridge, A. & Swanson, V. (2006). Managing two roles. A theoretical study of students' employment whilst at university. *Community, Work and Family*, 9(2), 159–179.

Brooks, R. & Youngson, P. L. (2016). Undergraduate work placements: An analysis of the effects on career progression. *Studies in Higher Education*, 41(9), 1563–1578.

Brooks, R. & Everett, G. (2009). Post-graduation reflections on the value of a degree. *British Educational research Journal*, 35(3), 333–349.

Brown, P., Hesketh, A. & Williams, S. (2003). Employability in a knowledge-driven economy, *Journal of Education and Work*, 16(2), 107–126.

Callender, C. (2008). The impact of term-time employment on higher education students' academic attainment and achievement. *Journal of Education Policy*, 23(4), 359–377.

Chan, W. S. C. (2010). Students' understanding of generic skills development in a university in Hong Kong. *Procedia and Social Sciences* 2(2), 4815–4819.

Chan, C. K.Y. & Fong, E. T.Y. (2018). Disciplinary differences and implications for the development of generic skills: a study of engineering and business students' perceptions of generic skills. *European Journal of Engineering Education*, 43 (6), 927–949.

Choi, B.K. & Rhee, B.S. (2014). The influences of student engagement, institutional mission, and cooperative learning climate on the generic competency development of Korean undergraduate students. *Higher Education*, 67(1), 1–18.

Clark, M. & Zukas, M. (2013). A Bourdieusian approach to understanding employability: becoming a 'fish in water. *Journal of Vocational Education and Training* 65(2), 208–219.

Clarke, M. (2017). Rethinking graduates employability: the role of capital, individual attributes and context. *Studies in Higher Education*, 43(11), 1–15.

Clements, A.J. & Kamau, C. (2017). Understanding students' motivation towards proactive career behaviours through goal-setting theory and the job demands-resources model. *Studies in Higher Education*, 1–15.

Crebert, G., Bates, M. Bell, B., Patrick, C-J. & Gragnolini, V. (2004). Developing generic skills at university, during work placement and in employment: graduates' perceptions. *Higher Education Research & Development*, 23(2), 147–165.

Creed. P.A, French, J. & Hood, M. (2015). Working while studying at university: The relationship between work benefits and demands and engagement and well-being. *Journal of Vocational Behavior*, 86, 48–57.

Côte, J. E. & Levine, C. (1997). Student motivations, learning environments, and human capital acquisition: toward an integrated paradigm of student development. *Journal of College Student Development*, 38 (3), 229–242.

Crisp, G. (2012). Integrative assessment: reframing assessment practice for current and future learning. *Assessment and Evaluation in Higher Education*, 37(1), 33–43.

Dacre Pool, L. & Sewell, P. (2007). The key to employability: developing a practical model of graduate employability. *Education + Training*, 49(4), 277–289.

Darolia, R. (2014). Working (and studying) day and night: Heterogeneous effects of working on the academic performance of full-time and part-time students. *Economics of Education Review*, 38, 38–50.

Davies, L. (2000). Why kick the "L" out of learning? The development of students' employability skills through part-time working, *Education + Training*, 42(8,), 436–444.

Delamare Le Deist, F. & Winterton, J. (2005). What is competence? *Human Resource Development international*, 8(1), 27–46.

Diseth, Å. (2007). Approaches to learning, course experience and examination grade among undergraduate psychology students: testing of mediator effects and construct validity. *Studies in Higher Education*, 32(3), 373–388.

DiPerna, J.C. & Elliott, S.N. (1999). Development and validation of the academic competence evaluation scales. *Journal of Psychoeducational Assessment* 17(3), 207–225.

Duff, A. (2004). Understanding academic performance and progression of first-year accounting and business economics undergraduates: the role of approaches to learning and prior academic achievement. *Accounting Education*, 13(4), 409–430.

Dunne, E., Bennett, N. & Carré, C. (2000). Skill development in higher education and employment. In F. Coffield (Ed). *Differing visions a learning society*. Research Findings, vol 1, (pp. 105–137). Bristol: The Policy Press.

Edvarsson Stiwne, E. & Alves, M.G. (2010). Higher education and employability of graduates: will Bologna make a difference? *European Educational Research Journal*, 9(1), 32–44.

Edvardsson Stiwne, E. & Jungert, T. (2010). Engineering students' experiences of transition from study to work. *Journal of Education and Work*, 23(5), 417–437.

Ehiyazaryan, E & Barraclough, N. (2009). Enhancing employability: integrating real world experience in the curriculum, *Education + Training*, 51(4), 292–308.

Elias, P. & Purcell, K. (2004). Is mass higher education working? Evidence from the labour market experiences of recent graduates. *National Institute Economic Review*, 190(1), 60–74.

Elo, S. & Kyngäs, H. (2007). The qualitative content analysis process. *Journal of Advanced Nursing* 62(1), 107–115.

Entwistle, N. (2009). *Teaching for Understanding at University*. Deep Approaches and Distinctive Ways of Thinking. Basingstoke: Palgrave MacMillan.

Entwistle, N.J. & McCune, V. (2004). The conceptual base of study strategies inventories in higher education, *Educational Psychology Review*, 16(4), 325–345.

Entwistle, N., McCune, V. & Hounsell, J. (2003). Investigating ways of enhancing university teaching-learning environments: measuring students' approaches to studying and perceptions of teaching. In E. De Corte, L. Verschaffel, N. Entwistle & J. van Merrienboer (Eds.) *Unravelling Basic Components and Dimensions of Powerful Learning Environments* (pp.89–108). Oxford: Elsevier Science.

Entwistle, N. J. & Peterson, E.R. (2004). Conceptions of learning and knowledge in higher education: relationships with study behaviour and influences of learning environments. *International Journal of Educational Research* 41(6), 407–428.

Entwistle, N. & Ramsden, P. (1983). *Understanding Student Learning*. London, Croom Helm.

European Parliament Council (2008). The establishment of the European Qualifications Framework for lifelong learning. Official Journal of European Union. Retrieved 25.11.2018 from: http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:111:0001:0007:EN:PDF.

Evans, C., Gbadamosi, G. & Richardson, M. (2014). Flexibility, compromise and opportunity: Students' perceptions of balancing part-time work with a full-time business degree. *The International Journal of Management Education*, 12 (2), 80–90.

National Advisory Board on Research Ethics. (2009). Ethical principles of research in the humanities and social and behavioural sciences and proposals for ethical review. Retrieved 15.11.2018 from *https://www.tenk.fi/sites/tenk.fi/files/ethicalprinciples.pdf*.

Finnish National Agency for Education and Ministry of Education and Culture (2018). Report on the referencing of the Finnish National Qualifications Framework to the European Qualifications Framework and the Framework for Qualifications of the European Higher Education Area. Retrieved 23.10.2018 from https://www.oph.fi/download/190482_Report_on_the_referencing_of_the_Finnish_National_Qualifications_Framework.pdf.

Figueiredo, H., Biscaia, R., Rocha, V. & Teixeira, P. (2015). Should we start worrying? Mass Higher education, skill demand and the increasingly complex landscape of young graduates' employment. *Studies in Higher Education*, 42(8), 1401–1420.

Flick, U. (2009). *An introduction to qualitative research* (4th ed.). London: Sage Publications.

Gajderowich, T., Grotkowska, G. & Wincenciak, L. (2014). Graduates' job satisfaction across domains of study. *International Journal of Manpower*, 35(4), 470–499.

García-Aracil, A. & Van der Velden, R. (2008). Competencies for young European higher education graduates: labor market mismatches and their payoffs. *Higher Education* 55(2), 219–239.

Gedye, S., Fender, E. & Chalkley, B. (2004). Students' undergraduate expectations and post-graduation experiences of the value of a degree. *Journal of Geography in Higher Education* 28(3), 381–396.

Gegenfurtner, A., Veermans, K., Festner, D. & Gruber, H. (2009). Motivation to transfer training: An integrative literature review. *Human resource Development Review*, 8(3), 403–123.

Grace, D., Weaven, S., Bodey, K., Ross, M. & Weaven, K. (2012). Putting student evaluations into perspective: the course experience quality and satisfaction model. *Studies in Educational Evaluation* 38(2), 35–43.

Graneheim, U. H. & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24, 105–112.

Green, W., Hammer, S. & Star, C. (2009). Facing up to challenge: why is hard to develop graduate attributes? *Higher Education Research and Development*, 28(1), 17–29.

Greenbank, P., Hepworth, S. & Mercer, J. (2009). Term-time employment and the student experience. *Education + Training*, 51(1), 443–455.

Hailikari, T. & Parpala, A. (2014). What impedes or enhances my studying? The interrelation between approaches to learning, factors influencing study progress and earned credits. *Teaching in Higher Education*, 19(7), 812–824.

Haarala-Muhonen, A., Ruohoniemi, M. & Lindblom-Ylänne, S. (2011) Factors affecting the study pace of first-year law students - in search of study counselling tools. *Studies in Higher Education*, 36(8), 911–922.

Hager, P., Holland, S. & Beckett, D. (2002). Enhancing the learning and employability of graduates: the role of generic skills. *Business/Higher education round table*, 9, 1–16.

Harvey, L. (2000). New realities: The relationship between higher education and employment. *Tertiary Education and Management*, 6(1), 3–17.

Havard, M., Hughes, M. & Clarke, J. (1998). The introduction and evaluation of key skills in undergraduate courses. *Journal of Further and Higher Education*, 22(1), 61–68.

Heikkilä, A. & Lonka, K. (2006). Studying in higher education: Students' approaches to learning, self-regulation, and cognitive strategies. *Studies in Higher Education* 31(1), 99–117.

Herrmann, K. Bager-Elsbrog, A. & McCune, V. (2017). Investigating the relationships between approaches to learning and, learner identities and academic achievement in higher education, *Higher Education*, 74(3), 385–400.

Herrmann, K., Bager-Elsborg, A. & Parpala, A. (2016). Measuring perceptions of the learning environment and approaches to learning: validation of the learn questionnaire. Scandinavian *Journal of Educational Research*, 1–14.

Hortigüela Alcalá, D., Palacios Picos, A. & López Pastor, V. (2018). The impact of formative and shared or co-assessment of the acquisition of transversal competences in higher education. *Assessment & Evaluation in Higher Education*, 1–13.

Hovdhaugen, E. (2013). Working while studying: The impact of term-time employment on dropout rates. *Journal of Education and Work*, 26(6), 631–651.

Hunt, A., Lincoln, I. & Walker, A. (2004). Term-time employment and academic attainment: Evidence from a large-scale survey of undergraduates at Northumbria University. *Journal of Further and Higher Education*, 28(1), 3–18.

Hyytinen, H., Toom, A. & Postareff, L. (2018). Unraveling the complex relationship in critical thinking, approaches to learning and self-efficacy beliefs among first-year educational science students. *Learning and Individual Differences*, 67, 132–142.

Jackson, D. & Collings, D. (2018). The influence of work-integrated learning and paid work during studies in graduate employment and underemployment. *Higher Education*, 76, 403–425.

Jackson, D. (2016). Modelling graduate skill transfer from university to the workplace. *Journal of Education and Work*, 29(2), 199–231.

Jackson, D. (2014). Self-assessment of employability skill outcomes among undergraduates and alignment with academics ratings. *Assessment & Evaluation in Higher Education*, 39(1), 53–72.

Jackson, D. & Wilton, N. 2017. Career choice status among undergraduates and the influence of career management competencies and perceived employability. *Journal of Education and Work* 30(5), 552–569.

James, P. (2000). The influence of a period of environment-oriented work experience on students' perception of their learning style. *Environmental Education Research*, 6(2), 157–165.

Jenert, T. (2014). Implementing outcome-oriented study programmes at university: The challenge of academic culture. *Zeitschift für Hochschulentwicklung*, 9(2), 1–12.

Johnson, R. B. & Onwuegbuzie, A.J. (2004). Mixed-method research: A research paradigm whose time has come. *Educational Researcher*, 33 (7), 14–26.

Johnson, R. B., Onwuegbuzie, A.J. & Turner, L, A. (2007). Toward a definition of mixed research. *Journal of Mixed Methods Research*, 1(2), 112–133.

Johnston, B. (2003). The shape of research in the field of higher education and graduate employment: some issues. *Studies in Higher Education*, 28(4), 416–426.

Johansson, K., Hård af Segerstad, H. Hult, H., Abrandt Dahlgren, M. & Dahlgren, L.O. (2008). The two faces of political science studies – junior and senior students' thoughts about their education and their future profession. *Higher Education*, 55(6), 623–636.

Jones, A. (2009). Generic attributes as espoused theory: the importance of context. *Higher Education*, 58(2), 175–191.

Judge, T.A., Higgins, C.A., Thoresen, C.J. & Barrick, M.R. (1999). The big five personality traits, general mental ability, and career success across the life span. *Personnel Psychology* 52(3), 621–652.

Kamphorst, J.C., Hofman, W.H.A., Jansen, E.P.W.A. & Terlouw, C. (2013). The relationship between perceived competence and earned credits in competence-based higher education. *Assessment and evaluation of Higher Education*, 38(6), 646–661.

Karagiannopoulou, E., Naka, K., Kamtsios, S., Savvidou, E. & Michalis, L. (2014). Medical students' approaches to learning before and after cardiology problem-based learning practice. *Journal of Contemporary Medical Education*, 2(3), 152–157.

Katsikas, E. (2013). The impact of students' working status on academic progress: assessing the implications of policy change in Greece. *Journal of Education and Work*, 26(5), 539–569.

Kavanagh, M. H. & Drennan, L. (2008). What skills and attributes does an accounting graduate need? Evidence from student perceptions and employer expectations. *Accounting and Finance*, 48(2), 279–300.

Kember, D., Biggs, J. & Leung, D. (2004). Examining the multidimensionality of approaches to learning through the development of a revised version of the learning process questionnaire. *British Journal of Educational Psychology*, 74, 261–280.

Kember, D., Hong, C., Yau, V.W.K. & Ho, S.A. (2017). Mechanisms for promoting the development of cognitive, social and affective attributes. *Higher Education*, 74, 7998–14.

Kember, D. & Leung, D.Y.P. (2011). Disciplinary differences in student ratings of teaching quality. *Research in Higher Education*, 52(3), 278–299.

Kember, D. (2009). Nurturing capabilities through a teaching and learning environment which provides practice in their use. *Higher Education*, 57 37–55.

Kember, D. & Leung, D. Y. P. (2005). The influence of the teaching and learning environment on the development of generic capabilities needed for a

knowledge-based society. *Learning Environments Research,* 8, 245–266.

Keneley, M & Jackling. B. (2011). The acquisition of generic skills of culturally-diverse student cohorts. *Accounting Education: An International Journal,* 20(6), 605–623.

Khaled, A.E., Gulikers, J.T.M., Tobi, H., Biemans, H.J.A., Oonk, C. & Mulder, M. (2014). Exploring the validity and robustness of a competency self-report instrument for vocational and higher competences-based education. *Journal of Psychoeducational Assessment*, 32(5), 429–440.

Kivinen, O. & Nurmi, J. (2011). The study progress and the working life relevance - the dilemma of higher education policy? (In Finnish) *Yhteiskuntapolitiikka* 76 (5), 687–691.

Kline, R. B. (2011). *Principles and practice of structural equation modelling* (3rd ed.). New York: Guilford press.

Knight, P.T. & Yorke, M. (2003). *Assessment, learning and employability*. Open University Press: Berkshire.

Knight, P.T. & Yorke, M. (2002). Employability through the curriculum, *Tertiary Education and Management*, 8, 261–276.

Knipprath, H. (2017). How higher education may contribute to the development of graduates' generic competences? In E. Kyndt, V. Donche, V., K. Trigwell & S. Lindblom-Ylänne (eds.), *Higher Education Transitions - Theory and Research* (pp. 254–269). Routledge: Taylor & Francis Group.

Krause, K-L. (2014). Challenging perspectives on learning and teaching in the disciplines: the academic voice. *Studies in Higher Education*, 39(1), 2–19.

Kreber, C. (2003). The relationship between students' course perception and their approaches to studying in undergraduate science courses: a Canadian Experience. *Higher Education Research and Development* 22(1), 57–70.

Kuijpers, M., Schyns, B. & Scheerens, J. (2006). Career competencies for career success. *The career Development Quaterly*, 55(2), 168–178.

Kyndt, E., Dochy, F. & Nijs, H. (2009). Learning conditions for non-formal and informal workplace learning. *Journal of Workplace Learning*, 21(5), 369–383.

Kyndt, E. Janssens, I., Coertjens, L., Gijbels, D., Donche, V. & Van Petegem, P. (2014). Vocational education students' generic working life competencies: developing self-assessment instrument. *Vocations and Learning*, 7(3), 365–392.

Lawless, C.J. & Richardson, J.T.E. (2002). Approaches to studying and perceptions of academic quality in distance education. *Higher Education*, 44(2), 257–282.

Lindblom-Ylänne, S., Parpala, A. & Postareff, L. (2018). What constitutes the surface approach to learning in the light of new empirical evidence? *Studies in Higher Education*, 1–13.

Lindblom-Ylänne, S., Parpala, A. & Postareff, L. (2014). Challenges in analysing change in students' approaches to learning." In D. Gijbels, V. Donche, J. T.E. Richardson & J. Vermunt (Eds), *Learning patterns in higher education: Dimensions and research perspectives (*pp. 232–248). New York: Routledge.

Lindblom-Ylänne, S. (2003). Broadening an understanding of the phenomenon of dissonance. *Studies in Higher Education*, 28(1), 63–77.

Lizzio, A. & Wilson, K. (2004). First-year students' perceptions of capability. *Studies in Higher Education*, 29 (1), 109–128.

Lizzio, A., Wilson, K. & Simons, R. (2002). University students' perceptions of the learning environment and academic outcomes: implications for theory and practice. *Studies in Higher Education*, 27(1), 27–52.

Lonka, K., Sharifi, P., Karlgren, K., Masinello, I., Nieminen, J., Birgegård, G. & Josephson, A. (2008). Med Nord – A tool for measuring medical students, well-being and study orientations. *Medical Teacher* 30(1), 72–79.

MacKinnon, D. P., Lockwood, C. M. & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research*, *39*(1), 99-128.

Mah, D-K. & Ifenthaler, D. (2017). Academic staff perspectives on first-year students' academic competencies. *Journal of Applied Research in Higher Education*, 9(4), 630–640.

Manthei, R. J. & Gilmore, A. (2005). The effect of paid employment on university students' lives. *Education Training*, 47(3), 202–215.

Marshall, I. & Cooper, L.S. (2001). Earning academic credit for part-time work. In D. Boud & N. Solomon (Eds). *Work-based learning*. *A new higher education?* (pp. 184–199). Open University Press, Buckingham.

Marton, F. & Säljö, R. (1976). On qualitative differences in learning: I outcome and process. *British Journal of Educational Psychology*, 46(1), 4–11.

Mikkonen, J., Ruohoniemi, M., Lindblom-Ylänne, S. (2011). The role of individual interest and future goals during university studies. *Studies in Higher Education*, 38(1) 1–16.

Ministry of Education and Culture. (2018). Announcement: The Preparatory Group presents reforms for funding and steering higher education institutions. Retrieved 22.11.2018 from https://minedu.fi/artikkeli/-/asset_publisher/vision-valmisteluryhma-esittaa-uudistuksia-korkeakoulujen-rahoitukseen-ja-ohjaukseen (in Finnish).

Monteiro, S., Almeida, L. & Garcia-Aracil, A. (2016). Graduates' perceptions of competencies and preparation for labour market transition. The effect of

gender and work experience during higher education. *Higher Education, Skills and Worked-Based Learning*, 6(2), 208–220.

Mora, J-G., García-Aracil, A. & Vila, L.E. (2007). Job satisfaction among young European higher education graduates. *Higher Education* 53(1), 29–59.

Moulin, S., Doray, P., Laplante, B. & Street, M.C. (2013). Work intensity and non-completion of university: longitudinal approach and causal inference. *Journal of Education and Work*, 26(3), 333–356.

Moynihan, L.M., Roehling, M. V., LePine, M.A. & Boswell, W. R. (2003). A longitudinal study of the relationships among job search and employment outcomes. *Journal of Business & Psychology*, 18(2), 207–233.

Murdock-Eaton, D. & Whittle, S. (2012). Generic skills in medical education: developing the tools for successful lifelong learning. *Medical Education*, 46(1), 120–128.

Nabi, G.R. & Bagley, D. (1999). Graduates' perceptions of transferable personal skills and future career preparation in the UK. *Education & Training*, 41(4), 184–193.

Neill, N., Mulholland, G., Ross, V. & Leckey, J. (2004). The influence of part-time work on student placement. *Journal of Further and Higher Education,* 28(2), 123–137.

Nelson Laird, T. F., Seifert, T., Pascarella, E.T., Mayhew, M. J. & Blaich, C.F. (2014). Deeply affecting first-year students' thinking: deep approaches of learning and three dimensions of cognitive development. *The Journal of Higher Education*, 85(3), 402–432.

Nicol, D. & MacFarlane-Dick, D. (2006). Formative assessment and self-regulated learning: a model and seven principles of good feedback practice. *Studies in Higher Education*, 31(2), 199–218.

Nikitina, L. & Furuoka, F. (2012). Sharp focus on soft skills: a case study of Malaysian university students' educational expectations. *Educational Research Policy Practice*, 11(3), 207–224.

Nonis, S. & Hudson, G. I. (2006). Academic performance of college students: influence of time spent studying and working. *Journal of Education for Business*, 81(3), 151–159.

Official Statistics of Finland (2019): Employment of students [e-publication]. ISSN=1799-0017. 2017. Helsinki: Statistics Finland [referred: 20.3.2019]. Retrieved 20.3.2019 from http://www.stat.fi/til/opty/2017/opty_2017_2019-03-14_tie_001_en.html

Official Statistics of Finland (2018). Transition from school to further education and work [e-publication]. ISSN=1798-9469. 2016. Helsinki: Statistics Finland. Retrieved 22.11.2018 from

https://www.stat.fi/til/sijk/2016/sijk_2016_2018-01-25_tie_001_en.html.

Official Statistics of Finland (2016): Progress of studies [e-publication]. ISSN=1799-1021. 2014. Helsinki: Statistics Finland. Retrieved 20.3.2019 from: http://www.stat.fi/til/opku/2014/opku_2014_2016-03-17_tie_001_en.ht.

Official Statistics of Finland (2015a): Employment of students [e-publication]. ISSN=1799-0017. Helsinki: Statistics Finland. Published 19.3.2015. Retrieved 22.11.2018 from http://www.stat.fi/til/opty/2013/opty_2013_2015-03-19_tie_001_en.html.

Official Statistics of Finland (2015b): Discontinuation of education [e-publication]. ISSN=1798-9302. 2013. Helsinki: Statistics Finland. Published 19.3.2015. Retrieved 22.11.2018 from http://www.stat.fi/til/kkesk/2013/kkesk_2013_2015-03-19_tie_001_en.html.

Okay-Somerville, B. & Scholarios, D. (2017). Position, possession or process? Understanding objective and subjective employability during university-to-work transitions. *Studies in Higher Education*, 42(7), 1275–1291.

Oliver, D. (2011). University student employment and expectations of the graduate labour market. *Journal of Industrial Relations*, 53(1), 123–131.

Onwuegbuzie, A. J. & Leech, N.L. (2004). Enhancing the interpretation of significant findings. The role of mixed methods research. *The Qualitative Report*, 9(4), 770—792.

Paul, G., Hinman, G., Dottl, S. & Passon, J. (2009). Academic development: a survey of academic difficulties experiences by medical students and supports services provided. *Teaching and Learning in Medicine*, 21 (3), 254–260.

Parker, J. (2006). Developing perceptions of competences during practice learning. *British Journal of Social Work*, 36(1), 1017–1036.

Parpala, A. & Lindblom-Ylänne, S. (2012). Using a research instrument for developing quality at the university. *Quality of Higher Education*, 18(3), 313–328.

Parpala, A., Lindblom-Ylänne, S., Komulainen, E., Litmanen, T. & Hirsto, L. (2010). Students' approaches to learning and their experiences of the teaching-learning environment in different disciplines. *British Journal of Educational Psychology*, 80(2), 269–282.

Patel, N., Brinkman, W.-P. & Coughlan, J. (2012). Work placements and academic achievement: Undergraduate computing students. *Education + Training*, 54(6), 523–533.

Paul, G., Hinman, G. Dottl, S. & Passon, J. (2009). Academic development: a survey of academic difficulties experiences by medical students and

supports services provided. *Teaching and Learning in Medicine*, 21 (3), 254–260.

Perrone, K. & Vickers, M.H. (2003). Life after graduation as a "very uncomfortable world": an Australian case study. *Education + Training*, 45(2), 69–78.

Pintrich, P. R. (2004). A conceptual framework for assessing motivation and self-regulated learning in college students. *Educational Psychology Review* 16 (4), 385–407.

Piróg, D. (2016). The impact of degree programme educational capital on the transition of graduates' labour market. *Studies in Higher Education*, 41(1), 95–109.

Pollard, E., R. Pearson, and R. Willison. 2004. " Next choices: Career Choices Beyond University." IES Report 405. http://www.employment-studies.co.uk/system/files/resources/files/405.pdf.

Postareff, L., Mattsson, M., Lindblom-Ylänne, S. & Hailikari, T. (2017). The complex relationship between emotions, approaches to learning, study success and study progress during transition to university. *Higher Education*, 73(3), 441–457.

Puhakka, A., Rautopuro, J. & Tuominen, V. (2010). Employability and Finnish university graduates. *European Educational Research Journal*, 9(1), 45–55.

Rainsbury, E., Hodges, D. & Burchell, N. (2002). Ranking workplace competencies: student and graduate perceptions. *Asia-Pacific Journal of Cooperative Education*, 3(2), 8–18.

Ramsden, P. (1991). A performance indicator of teaching quality in higher education: The Course Experience Questionnaire. *Studies in Higher Education*, 16(2), 129–150.

Richardson, J. T. E. & Price, L. (2003). Approaches to studying and perceptions of academic quality in electronically delivered courses. *British Journal of Educational Technology*, 34 (1), 45–56.

Robotham, D. (2009). Combining study and employment: A step too far? *Education + Training*, 51(4), 322–332.

Roohr, K., Olivera-Aguilar, M., Ling, G. & Rikoon, S. (2018). A multi-level modeling approach to investigating students' critical thinking at higher education institutions. *Assessment and Evaluation in Higher Education*, 1–14.

Rothwell, A. & Arnold J. (2007). Self-perceived employability: development and validation of a scale. *Personnel review*, 36(1), 23–41.

Ruohoniemi, M., Forni, M., Mikkonen, J. & Parpala, A. (2017). Enhancing quality with a research-based student feedback instrument: a comparison of veterinary students' learning experiences in two culturally

different European universities. *Quality in Higher Education*, *23*(3), 249-263.

Ryan, M., Barns, A. & McAuliffe, D. (2011). Part-time employment and effects on Australian social work students: A report on a national study. *Australian Social Work*, 64(3), 313–329.

Rytkönen, H., Parpala, A., Lindblom-Ylänne, S., Virtanen, V. & Postareff, L. (2012). Factors affecting bioscience students' academic achievement. *Instructional Science*, 40(2), 241–256.

Räisänen, M., Postareff, L. & Lindblom-Ylänne, S. (2016). University students' self- and co-regulation of learning and processes of understanding: a person-oriented approach. *Learning and Individual Differences* 47, 281–288.

Sainio, J., Carver, E. & Kangas, T. (2017). Elements for building a good career. Aarresaari Network Master's degree career monitoring. (In Finnish). https://www.aarresaari.net/download/71/evaita_hyvan_tyouran_rakentamiseen_maisteriuraseuranta_2016/pdf

Sanchez-Gelabert, A., Figueroa, M. & Elias, M. (2017). Working whilst studying in higher education: The impact of the economic crisis on academic and labour market success. *European Journal of Education*, 52(2), 232–245.

Sakurai, Y., Parpala, A., Pyhältö, K. & Lindblom-Ylänne, S. (2016). Engagement in learning: a comparison between Asian and European international university students. *A Journal of Comparative and International Education*, 46(1), 24–47.

Salamonson, Y., Everett, B., Koch, J., Andrew, S. & Davidson, P. M. (2012). The impact of term-time paid work on academic performance in nursing students: A longitudinal study. *International Journal of Nursing Studies*, 49(5), 579–586.

Saloniemi, A., Salonen, J., Lipiäinen, L., Nummi, T. & Virtanen, P. (2013). Studies and works. Development Path Analysis of Young People's Workers in a Bachelor's Degree. (In Finnish). *Yhteiskuntapolitiikka* 78 (4), 402–415.

Schaeper, H. (2009). Development of competencies and teaching-learning arrangements in higher education: findings from Germany. *Studies in Higher Education*, 34(6), 677–697

Schoonenboom, J. & Johnson, R.B. (2017). How to construct a mixed methods research design? Kölner *Zeitschrift für Soziologie und Sozialpsychologie*, 69(2), 107–131.

Semeijn, J.H., Van der Velden, R., Heijke, H., van der Vleuten, C. & Boshuizen, H.P.A. (2006). Competence indicators in academic education and early labour market success of graduates in health sciences. *Journal of Education and Work*. 19(4), 383–413.

Sharp, J.G., Hemmings, B., Kay R. & Sharp, J.C. (2017). Academic boredom and the perceived course experiences of final year education studies students at university. *Journal of Further and Higher Education*, 1–27.

Shaw, A.J. (2012). The value of work experience in outcomes for students: an investigation into the importance of work experience in the lives of female undergraduates and postgraduates job seekers. *Journal of Vocational Education and Training*, 64(2), 155–168.

Shaw, S. & Ogilvie, C. (2010). Making a virtue out of a necessity: part time work as a site for undergraduate work-based learning. *Journal of European Industrial Training*. 34(8-9), 805–821.

Skaniakos, T., Honkimäki, S., Kallio, E., Nissinen, K. & Tynjälä, P. (2018). Study guidance, study progress, and perceived learning outcomes of Finnish university students. *European Journal of Higher Education*, 1–16.

Sleap, M. & Reed, H. (2006). Views of sport science graduates regarding work skills developed at university. *Teaching in Higher Education*, 11(1), 47–61.

Smith, K., Clegg, S., Lawrance, E. & Todd, M.J. (2007). The challenges of reflection: students learning from work placements. *Innovations in Education and Teaching International*, 44(2), 131–141.

Sporer, T. Heinze, N, Jenert, T. & Reinmann, G. (2007). Student learning in the project-centered study program "problem-solving competencies". *Proceedings of the 1st International Workshop on Collaborative Open Environments for Project-centered Learning,* 86–95.

Strijbos, J., Engels, N. & Struyven, K. (2015). Criteria and standards of generic competences at bachelor degree level: a review study. *Educational Research Review*, 14, 18–32.

Sulaiman, A. & Mohezar, S. (2006). Student success factors: Identifying key predictors. *Journal of Education for Business*, 81(6), 328–333.

Suleman, F. (2018). The employability skills of higher education graduates: insights into conceptual frameworks and methodological options. *Higher education*, 76, 263–278.

Svensson, L. (1977). On qualitative differences in learning: III. Study skill and learning. *British Journal of Educational Psychology*, 47, 233–243.

Teddlie, C. & Tashakkori, A. (2009). *Foundations of Mixed Methods Research. Integrating quantitative and qualitative approaches in the Social and Behavioural Sciences*. Sage Publications: California.

Teichler, U. (2007). Does higher education matter? Lessons from comparative survey. *European Journal of Education*, 42(1), 11–34.

Tett, C. Cree, V. & Christie, H. (2017). From further to higher education: transition as an on-going process. *Higher Education*, 73(3), 389–406.

The University of Helsinki Annual Report. (2013). Retrieved 23.11.2018 from http://www.helsinki.fi/annualreport2013/.

Theune, K. (2015). The working status of students and time to degree at German universities. *Higher Education*, 70(4), 725–752.

Tomlinson, M. (2008). 'The degree is not enough': students' perceptions of the role of higher education credentials of graduate work and employability. *British Journal of Sociology of Education*, 29(1), 49–61.

Trede, F. & McEwen, C. (2015). Early workplace learning experiences: what are the pedagogical possibilities beyond retention and employability? *Higher Education,* 69(1), 19–32.

Triventi, M. (2014). Does working during higher education affect students' academic progression? *Economics of Education Review*, 41, 1–13.

Tuominen, V., Rautopuro, J. & Puhakka, A. (2011). Master's graduates' difficulties in employment. (In Finnish). *Työpoliittinen Aikakauskirja* 3, 5–21.

Tuononen, T., Kangas, T., Carver, E. & Parpala, A. (2019). Five years after graduation -Did university studies support the development of working life skills from a career perspective? (In Finnish). *Journal of University Pedagogy*. https://lehti.yliopistopedagogiikka.fi/2019/02/08/yliopisto-opintojen-anti-tyoelamataitojen-kehittyminen/.

Turner, N.K. (2014). Development of self-belief for employability in higher education: ability, efficacy and self-control. *Teaching in Higher Education*, 19(6), 592–602.

Tymon, A. (2013). The student perspective on employability. *Studies in Higher Education*, 38(6), 841–856.

Tynjälä, P., Slotte, V., Nieminen, J. Lonka, K. & Olkinuora, E. (2006). From University to Working Life: Graduates' Workplace Skills in Practice. In P. Tynjälä, J. Välimaa and G. Boulton-Lewis (Eds.), *Higher Education and Working Life – Collaborations, confrontations and challenges* (pp.71-88). Amsterdam: Elsevier.

Vaatstra, R. & De Vries, R. (2007). The effect of the learning environment on competences and training for the workplace according to graduates. *Higher Education*, 53(3), 335–357.

Viuhko, M. (2006). Student survey 2006. Higher education students' livelihood and working. Ministry of Education Publications, 51. (In Finnish). Access: http://julkaisut.valtioneuvosto.fi/handle/10024/79939.

Van Dierendonck, D. & Van der Gaast, E. (2013). Goal orientation, academic competences and early career success. *Career Development International*, 18(7), 694–711.

Van Dinther, M., Dochy, F., Segers, M. & Braeken, J. (2014). Student perceptions of assessment and student self-efficacy in competence-based education. *Educational Studies*, 40(3), 330–351.

Van Dinther, M. Dochy, F., Segers, M. & Braeken, J. (2013). The construct validity and predictive validity of a self-efficacy measure for student

teachers in competence-based education. *Studies in Educational Education*, 39(3), 169–179.

Vermeulen, L. & Schmidt, H.G. (2008). Learning environment, learning process, academic outcomes and career success of university graduates. *Studies in Higher Education*, 33(4), 431–451.

Wilson, K., Lizzio, A. & Ramsden, P. (1997). The development, validation and application of the course experience questionnaire. *Studies in Higher Education,* 22(1), 33–53.

Wang, H., Kong, M., Shan, W. & Vong, S. K. (2010). The effects of doing part-time jobs on college student academic performance and social life in a Chinese society. *Journal of Education and Work*, 23(1), 79–94.

Watts, C. & Pickering, A. (2000). Pay as you learn: student employment and academic progress. *Education + Training*, doi: /10.1108/00400910010372670.

Young, J. & Chapman, E. (2010). Generic competency frameworks: A brief historical overview. *Education Research and Perspectives*, 37(1), 1–24.

Zainuddin, Z. & Perera, C. J. (2019). Exploring students' competences, autonomy and relatedness in the flipped classroom pedagogical model. *Journal of Further and Higher Education*, 43(1), 115–126.

Zeegers, P. (2004). Student learning in higher education: A path analysis of academic achievement in science. *Higher Education research & Development*, 23(1), 35–56.

Zimmerman, B.J. (2002). Becoming a self-regulated learner: An Overview. *Theory into Practice* 41 (2): 64–70.

Appendices

Appendix 1. Pattern matrix of the items measuring approaches to learning.

Items	Factors		
	Deep approach	Surface approach	Organised studying
12. I try to relate what I have learned in one course to what I learn in other courses.	0.706	-0.005	-0.004
5. Ideas I've come across in my academic reading set me off on long chains of thought.	0.674	-0.015	-0.009
11. I try to relate new material, as I am reading, to what I already know on that topic.	0.653	-0.022	-0.054
6. I`ve carefully looked at evidence to reach my own conclusion about what I'm studying.	0.626	-0.022	-0.075
7. Topics are presented in such complicated ways that I can't see what is meant.	-0.072	0.731	-0.001
1. I've had trouble making sense of the things I have to remember.	-0.000	0.626	-0.143
9. I have to learn over and over things that don't really make much sense to me.	0.057	0.604	0.099
3. Much of what I've learned seems nothing more than many unrelated bits and pieces in my mind.	-0.117	0.289	-0.074
4. On the whole, I've been quite systematic and organised in my studying.	-0.057	-0.044	0.810
8. I organise my study time carefully to make the best use of it.	0.000	-0.104	0.566
10. I carefully prioritise my time to make sure I can fit everything in.	-0.041	0.027	0.558
2. I put a lot of effort into my studying.	0.135	0.069	0.461
Factor correlations			
Deep approach	1	-0.312	0.309
Surface approach		1	-0.220
Organised studying			1

Appendix 2. Variables and scales of the follow-up questionnaire.

Themes	Variables	Scale
Usefulness of university education	*Academic competences* How have university studies developed different academic competences? 1. Applying knowledge 2.Collaboration and communication skills 3. Structuring and analysing information 4. Seeing different perspectives 5. Critical thinking 6. Making arguments and looking for solutions 7. Developing new ideas	1–5 totally disagree — totally agree
	1. I can use my academic education in my work. 2. The level of my current job corresponds to my academic education.	1–5 totally disagree — totally agree
Degree satisfaction	How satisfied are you with your degree in terms of career?	1–5 totally dissatisfied — totally satisfied
Selection of field of study	Would you choose the same field of study again?	1 = Yes 2 = No
Career success Current career situation	Are you currently working?	1. Yes, I am employed. 2. Yes, but I am doing other things also, e.g. studying. 3. No, I am on a family leave or study leave. 4. I am not working.
Nature of current work	What is the nature of your current work?	1. Academic work in my own study field 2. Other academic work 3. Non-academic work
Unemployment	Have you been unemployed at some point after your graduation? If you have been unemployed, how many months did it last?	1= Yes 2 = No

Reasons for difficulties in finding a job	If you have experienced difficulties in finding a job, evaluate how the following factors have contributed to your employment situation. 1. Poor employment situation in the field 2. Regional labour market situation 3. Lack of work experience 4. Inadequate networks 5. Subjects in the degree 6.Uncertainty about one's own competences 7. Uncertainty about one's goals	1–5 totally disagree — totally agree
Job satisfaction	I am satisfied with my current job.	1–5 totally disagree — totally agree
Open-ended questions	1. What have been the most important skills that you have learned at university and used in working life? 2. What would you have needed more of at university? 3. What kind of challenges have you had in working life?	